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MENTALITY OF THE ARRIVING IMMIGRANT

BY

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CONTENTS.

	Page.
Introduction	5
Arithmetical tests	11
Counting	11
Addition	17
Subtraction	23
Division	23
Problems	24
Memory tests (nonarithmetical)	29
Report	29
Visual apprehension	32
Repeating digits	33
Story	35
Cube Test	39
Counting dots	44
Learning	46
Obeying commands	49
Arranging objects	51
Number of months in the year	56
Names of months	56
Number of days in the year	56
Date	57
Number of days in week	58
Names of days in week	58
Name of ship	59
Copying and drawing from memory	59
Transitional tests (nonarithmetical)	73
Enumerating days of week backward	73
Opposites	74
Five animals	76
Inverted animals	77
Colors	78
Coins	79
Weights	79
Difference between house and stable	80
Christmas or Peysach	81
Tests in reasoning (nonarithmetical)	83
Geographic	83
Healy's Construction Test A	93
Relationship	102
Modification	105
Definitions	110
Description	118
Comparative scores of arriving immigrants	125
Points allotted to each test	125
Total scores made by each immigrant tested	126
Discussion	131
Bibliography	132

ILLUSTRATIONS.

Page.

Figure 1. "A Village" (taken from illustration, 16 by 11 inches, used in Report Test) 30
2. View of board used in Visual Apprehension Test, with objects fastened to it ..... Faces 32
3. A movement of the Four-Cube Test, showing also how board may be used for Five-Cube Test 40
4. Card used in Dot-Counting Test 45
5. Face of card used in Learning Test 47
6. Back of card used in Learning Test 47
7. Board and field, with 16 pieces, used in Arranging Objects Test 53
8. Geometrical forms used in copying and drawing from memory 60
9. Two standards for each design, used in grading the immigrants' drawings in Copying and Drawing from Memory Test 62
10–39. Drawings made by immigrants in Copying and Drawing from Memory Test 64–70
40. Geographic puzzle, as presented to immigrant for solution 84
41. Geographic puzzle, with first three pieces in their proper clefts 84
42. Geographic puzzle, with pieces in their proper clefts 84
43. Healy Frame Test, as presented to immigrant for solution 94
44. Healy Frame Test, as solved 94
45. A type of error in solving Healy Frame Test 94
46. Arrangement of pieces in Relationship Test 103
47. Pig and chicken—Modification Test 106
48. Pig, chicken, and man—Modification Test 106
49. Two pigs, chicken, and man—Modification Test 107
50. Two pigs, two chickens, and man—Modification Test 107
51. "Last Honors to Bunny" (taken from illustration, 16 by 11 inches in size, used in Description Test) 119

MENTALITY OF THE ARRIVING IMMIGRANT.

By E. H. Mullan, *Passed Assistant Surgeon, United States Public Health Service.*

INTRODUCTION.

In order to diagnose mental disease and mental deficiency in an immigrant at an immigration station a knowledge of the mental ability and conduct of the normal or average immigrant at the time of arrival is necessary. Normal aliens at the time of landing are in a peculiar mental state. Many of them have come from rural districts where opportunities have been meager; they have parted from their relatives and friends; they have undergone a long voyage, perhaps suffering many hardships; they are anxious to land and to meet relatives. Therefore, their mental condition has been partly shaped by all these circumstances; and if they are questioned or given mental tasks to perform at the time of arrival it is to be expected that their replies and general behavior will not be the same as would be obtained under other conditions.

In order to assist medical officers in understanding the mentality of average immigrants it was decided that an experimental study should be undertaken at Ellis Island and that a number of immigrants who were not obviously mentally deficient or insane should be put through a definite examination to find out what they knew and what they could do under the conditions attending the landing from a long voyage. With this aim in view an examination, composed of questions and performance tests, was carefully planned. Many of the tests had been in use for some time at immigrant stations and had been found serviceable in mental examinations. New tests were also employed, some of which proved to be of distinct value while others were attended with uncertain results.

At first it was intended to examine a large number of immigrants of different nationalities who were free from physical defect, but difficulties made this impossible in a number of cases. It is believed, however, that defects of vision were the only ones which affected the examinations adversely.

An interpreter who spoke Italian, Spanish, and German was assigned to the work. As Italian immigration was large at the time, it was decided to examine as many suitable cases as possible among the German and Spanish immigrants and to fall back on the Italians whenever the others could not be found.

The examination was conducted in a quiet, well-lighted, well-ventilated room on the second floor of the hospital, the subject, interpreter, and examiner being the only ones present. These details must constantly be borne in mind as the results of the tests are considered. As a rule the examination lasted one and a half hours.

After a practice examination with various subjects, which lasted about a week, the examiner and interpreter acquired a definite method of procedure, and the examination proper began about the middle of January, 1914.

The cases for the investigation were selected from those who had been detained at least 24 hours in the detention rooms or from the ambulatory cases of the hospital wards; but care was exercised not to select those who had been detained as suspicious cases of mental deficiency. The experimenter constantly endeavored to select young subjects (over 9 years of age) who had never been to school. A number of such immigrants are hard to find at any one time in the detention rooms of Ellis Island. This is shown by the fact that only 4 illiterate children of 10 and 11 years of age, who could be questioned by the examining interpreter, were found while the examination was in progress. When such cases could not be found, the examiner had to make his choice between young literates and older illiterates. Sometimes he would choose the former and at other times the latter. Among the literates he always selected those who had received the smallest amount of schooling.

Certain immigrants at the time of selection stated that they had never been to school and could not read and write. When the examination was half through or entirely completed, however, many of these cases acknowledged that they had been to school for several months or several years. Their former statements regarding school attendance were immediately corrected, and they were placed in one of the literate groups.

Most of the Hebrew children had been to Cheydar, a religious school in which varying amounts of reading and arithmetic are taught. The statements in regard to the amount of instruction received in these religious schools varied greatly in different cases. As the Cheydar children responded to the tests about as well as the other literate adults, it was thought best to place them among the literate groups.

Owing to the outbreak of the European war, it became difficult to find suitable immigrants for the examination. In September, 1914, it was also felt that enough data had been secured for the purpose of showing how average arriving immigrants respond and behave under the ordeal of a mental examination. Hence the tests were discontinued.

At the conclusion of this study 296 immigrants had been examined. Three of them turned out to be positive cases of mental deficiency.

They were certified for deportation as such, and their records were not included in this exposition. It was thought that 8 other immigrants were possible cases of mental deficiency. As a positive diagnosis could not be made in regard to them at one examination, however, their records were retained. It is believed that this procedure has produced a truer average record than it would had these particular cases been excluded from the results.

The 293 subjects examined and recorded were distributed among the following races:

Italians	103	Greeks	11	Armenian	1
Hebrews	50	Norwegians	4	Cuban	1
Russians	26	Lithuanians	3	Egyptian	1
Ruthenians	26	West India Negroes	3	Irish	1
Spaniards	25	Danes	2	Roumanian	1
Germans	21	Algerian	1	Swiss	1
Poles	11	Arabian	1		

For the purpose of presentation, these immigrants were arranged in two general divisions—literates and illiterates. Those who had been to school for six months or more and those who had learned something about reading and writing at home during a similar period of time were considered as literates. Both literate and illiterate immigrants are divided into three groups according to age. Three special groups, composed of Italians and Slavs—most of whom were over 15 years of age and were therefore classed as adult—and Hebrew children were also formed. The different groups were at times divided into subgroups of the two sexes.

The following table shows how the groups were arranged:

TABLE 1.—*Groups into which immigrants were divided.*

Literate division.		Illiterate division.	
Number of immigrants.	Group.	Number of immigrants.	Group.
12	Ages 9–11.	4	Ages 10–11.
25	Hebrew, ages 9–11.	8	Ages, 12–14.
37	Ages 12–14.	29	Ages 15 and above.
100	Ages 15 and above.	40	Italian.
		40	Slav.

The composition of these groups, giving the nationality, race, age, sex, and years of schooling of each immigrant, is shown in the final section of the bulletin (pp. 126–130).[1]

Conclusions based on the results obtained in testing the *illiterate 10–11* group, composed of 4 immigrants, 10 and 11 years of age, should not be indiscriminately applied to all illiterate children of those

[1] In this section it will be noted that two immigrants (Russian No. 26 and Austria Ruthenian No. 22) appear in both the *illiterate 12–14* and the *Slav illiterate* groups. This is the only case in which a duplication occurred.

ages. The data presented in regard to this group have some value, especially in the absence of any other data, but the group is entirely too small for the purpose of drawing general conclusions. The same qualification applies in part to some of the other groups.

It will be noticed in the tables of results that the number of immigrants examined in a particular test occasionally fall short of the number that comprise the group. This is due to the fact that in certain cases the examination was discontinued on account of accidental causes.

The tests are divided into two general classes, arithmetical and nonarithmetical. The latter is subdivided into memory tests, transitional tests, and tests in reasoning. A group of immigrants is said to qualify on a test when 75 per cent of its members are successful, but this mark is a purely arbitrary one adopted by the experimenter.

The examination chart which was filled out in the case of each immigrant is here shown:

Examination chart.

No. Name Vision Hearing Gait Stigmata Gen. appearance
Time Where detained Nationality Race Sex Age
Occupation Address in United States

Residence, {Estimation of houses} Church, {No. / distance} School, {No. / distance}

Railway: Schooling, {Brothers / Sisters} Alien, {Tell why you did not go to school?}

Did you learn as easily as {Brothers / Sisters} Why are you going to America?

Counting:
- 20 to 1 (T) =
- 2 to 20 (2's. T) =
- 20 to 2 (2's. T) =
- 3 to 30 (3's. T) =

Addition:

3 + 4 =	8 + 6 =	2 + 3 + 4 =
6 + 6 =	15 + 15 =	2 + 4 + 6 + 8 =
6 + 7 =	15 + 16 =	17 + 13 + 9 + 4 =

Cubes:

Three cubes.
- 1. 4. 2. 3. =
- 1. 3. 4. 2. =
- 1. 3. 2. 4. =
- 4. 2. 3. 1. =
- 3. 2. 4. 1. =
- 2. 4. 1. 3. =

Four cubes.
- 1. 4. 5. 2. 3. =
- 2. 4. 1. 3. 5. =
- 5. 1. 3. 4. 2. =
- 4. 3. 5. 2. 1. =

Five cubes.

Subtraction:
- A. 6 apples − 2 apples =
- B. 12 apples − 5 apples =
- C. 20 − (3 bread + 4 meat) (T)[1] =

[1] "T" means that time was recorded.

Modification:

Division: Divide 20 apples equally among 4 persons

Problems:
- How many legs have?
  - 1 horse =
  - 2 horses =
  - 3 horses =
- Horse + man + chicken (8. T) =
- 2 horses + 2 men (12. T) =
- 3 horses + 2 men (16. T) =
- Horse + 2 men + 3 chickens (14. T) =

Visual apprehension: (4″)

Report: (20″)
- Narrative
- Interrogatory: Did you see the
  1. Church?
  2. Steps?
  3. Horse, white?
  4. Dog?
  5. Man?

Description:
1. Of what is this a picture?
   - A. City or village
   - B. Butcher shop
   - C. Barnyard
   - D. Harbor scene
   - E. Last Honors to Bunny

E. Last Honors to Bunny
2. What is going on in the picture?
3. What are the boys and girl doing?
4. What is the big boy doing?
5. Why is he digging a hole?
6. Is he digging a hole in which to bury the rabbit?
7. What is the girl going to do with the flowers?

No.	Copying	Drawing from memory	Arranging objects
Repeating digits:	3 8 2 3 1 8 4 7 9 3 8 1	8 5 1 6 3 4 9 2 1 8 7 4 3	2 1 7 6 3 8 5 9
	4 9 7 1 7 6 8 2 7 4 9 3	1 4 7 8 3 9 1 3 9 6 4 8 5	

Obeying commands:
1. Open door
2. Chair near window

1. Book on floor
2. Chair in corner
3. Pencil on chair

1. Pencil on table
2. Close door
3. Book on table
4. Block on floor

1. Block on table
2. Book on floor
3. Open door
4. Chair near window
5. Pencil in corner

Learning
Geographical
Story

Relationship

Counting dots

Range of information:

Months		days in the year	date
Days of week		backward	
Christmas	Name of ship		
Colors	coins		weights

Define: 1. Tree 3. Run
2. Bed 4. Truth

"Healy" Difference between home and stable

Pictures of five animals

Opposites:

Man	Winter	Rich
Day	Cold	Sick
Good	High	Up
Inside	Yes	Boy

Remarks:

Perhaps as many as 12 immigrants who gave fair responses to tests and questions exhibited extreme peculiarities in behavior which were suggestive of pathological mental states.

Symptoms which occurred in different cases suggested the existence of defective judgment, paranoid trends, manic-depressive, hysterical, and epileptic make-ups, as well as other psychopathic states. Notes were taken in all of these cases but will not be here shown, as they belong more properly to the domain of psychiatry.

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ARITHMETICAL TESTS.

COUNTING.

The immigrant was tested in counting backward from 20 to 1, forward from 2 to 20 by 2's, backward from 20 to 2 by 2's, and forward from 3 to 30 by 3's. Two trials for each counting test were permitted.

METHOD OF TESTING.

In the 20-to-1 test the interpreter said to the subject, "Count backward from 20 to 1: thus, 20, 19, 18, 17, and so on." Time was taken with stop watch from the instant the immigrant said 20 until he reached 1.

Whenever the immigrant succeeded at the first trial the time required for the performance was immediately recorded on his examination chart. Three or less mistakes[1] were not counted against the immigrant, but if he made more than three, or if he came to a complete stop, the trial was recorded as a failure. The subject was then told to pay strict attention, while the interpreter slowly counted from 20 to 1 three times in succession. After this instruction the subject was again asked to count from 20 to 1, this constituting the second trial.

The other counting tests were conducted in the same way.

RESULTS.

A statement of the results obtained in the 4 counting tests by the 9 groups of immigrants follows. In the 20-to-1 test, which is more frequently used than the other counting tests, the average deviation[2] in the performance time of each group or subgroup is shown.

---

[1] A mistake in counting occurred when the subject injected the wrong number, skipped a number, or when he was assisted by the examiner. The examiner assisted the immigrant whenever the latter did fairly well but accidentally got off the track.

[2] The average deviation is obtained by finding the differences between the individual time records and the average time record in each group of immigrants and then finding the mean of these differences.

TABLE 2.—*Results of counting tests.*

Test.	Group.	Number examined.	Number successful.			Number failing.	Percentages.		Time required for success.				
									First trial.[1]			Second trial.[1]	
			First trial.	Second trial.	Total.		Successes.	Failures.	Average time.	Average deviation.	Time ranged between—	Average time.	Time ranged between—
	Literate:								Secs.	Secs.	Secs.	Secs.	Secs.
	9–11	12	12	....	12	....	100	.....	13	3	6–20	.....	.....
	Hebrew, 9–11	25	24	1	25	....	100	.....	18	6	9–40	[2] 105	.....
	12–14	37	36	1	37	....	100	.....	13	3	8–24	[2] 30	.....
	15–above	100	99	1	100	....	100	.....	14	2	7–36	[2] 26	.....
	Illiterate:												
	10–11	4	2	....	2	2	50	50	19½	3½	[3] 16–23	.....	.....
20	12–14	8	7	1	8	....	100	.....	24	10	10–50	[2] 63	.....
to	15–above	29	29	....	29	....	100	.....	22	9	7–52	.....	.....
1	Men	21	21	....	21	....	100	.....	22	.....	7–52	.....	.....
	Women	8	8	....	8	....	100	.....	23	.....	13–34	.....	.....
	Italian	40	35	1	36	4	90	10	25	9	10–60	[2] 110	.....
	Men	20	19	....	19	1	95	5	22	.....	10–46	.....	.....
	Women	20	16	1	17	3	85	15	29	.....	16–60	[2] 110	.....
	Slav	40	31	6	37	3	92½	7½	22	7	10–51	49	30–66
	Men	10	7	3	10	....	100	.....	21	.....	14–36	56	41–66
	Women	30	24	3	27	3	90	10	22	.....	10–51	42	30–63
	Literate:												
	9–11	12	12	....	12	....	100	.....	7	.....	3–15	.....	.....
	Hebrew, 9–11	25	25	....	25	....	100	.....	6	.....	3–13	.....	.....
	12–14	37	36	1	37	....	100	.....	7	.....	3–27	[2] 26	.....
	15–above	100	99	1	100	....	100	.....	6	.....	2–27	[2] 20	.....
	Illiterate:												
2	10–11	4	2	2	4	....	100	.....	8	.....	[3] 6–10	34	[3] 33–35
to	12–14	8	8	....	8	....	100	.....	16	.....	5–29	.....	.....
20	15–above	29	26	3	29	....	100	.....	9	.....	4–18	20	14–24
by	Men	21	19	2	21	....	100	.....	8	.....	4–18	18	[3] 14–22
2's	Women	8	7	1	8	....	100	.....	10	.....	5–17	[2] 24	.....
	Italian	40	36	3	1	....	97½	2½	11	.....	4–45	17	15–22
	Men	20	18	1	19	....	95	5	9	.....	4–20	[2] 15	.....
	Women	20	18	2	20	....	100	.....	14	.....	4–45	19	[3] 15–22
	Slav	40	36	3	39	1	97½	2½	14	.....	5–26	24	19–32
	Men	10	10	....	10	....	100	.....	15	.....	6–26	.....	.....
	Women	30	26	3	29	1	96⅔	3⅓	13	.....	5–23	24	19–32
	Literate:												
	9–11	12	12	....	12	....	100	.....	12	.....	5–25	.....	.....
	Hebrew, 9–11	25	22	3	25	....	100	.....	14	.....	5–30	28	14–56
	Boys	16	15	1	16	....	100	.....	13	.....	5–25	[2] 56	.....
	Girls	9	7	2	9	....	100	.....	15	.....	5–30	14½	[3] 14–15
	12–14	37	34	2	36	1	97+	2½+	10	.....	4–23	29	[3] 28–30
	Boys	18	17	1	18	....	100	.....	12	.....	6–21	[2] 28	.....
	Girls	19	17	1	18	1	94½+	5+	9	.....	4–23	[2] 30	.....
	15–above	100	95	4	99	1	99	1	11	.....	4–45	22	17–26
	Men	51	49	2	51	....	100	.....	11	.....	5–45	22½	[3] 20–25
20	Women	49	46	2	48	1	98−	2+	10	.....	4–34	21½	[3] 17–26
to	Illiterate:												
2	10–11	4	1	....	1	3	25	75	[2] 17	.....	.....	.....	.....
by	12–14	8	3	3	6	2	75	25	13	.....	9–13	34	29–40
2's	Boys	4	2	....	2	2	50	50	12½	.....	[3] 12–13	.....	.....
	Girls	4	1	3	4	....	100	.....	[2] 9	.....	.....	34	29–40
	15–above	29	25	2	27	2	93+	7−	16	.....	6–50	22½	[3] 16–27
	Men	21	20	1	21	....	100	.....	15	.....	6–50	[2] 27	.....
	Women	8	5	1	6	2	75	25	21	.....	10–30	[2] 16	.....
	Italian	40	30	....	30	10	75	25	19	.....	5–50	.....	.....
	Men	20	19	....	19	1	95	5	17	.....	5–50	.....	.....
	Women	20	11	....	11	9	55	45	21	.....	6–43	.....	.....
	Slav	40	28	8	36	4	90	10	22	.....	7–70	33	19–67
	Men	10	7	2	9	1	90	10	21	.....	10–35	43	[3] 20–67
	Women	30	21	6	27	3	90	10	22	.....	7–70	29	19–42

[1] Only those who succeeded in the trial are considered. [2] 1 case. [3] 2 cases.

TABLE 2.—*Results of counting tests*—Continued.

Test.	Group.	Number examined.	Number successful.			Number failing.	Percentages.		Time required for success.				
									First trial.			Second trial.	
			First trial.	Second trial.	Third trial.		Successes.	Failures.	Average time.	Average deviation.	Time ranged between—	Average time.	Time ranged between—
									Secs.	Secs.	Secs.	Secs.	Secs.
3 to 30 by 3's	Literate:												
	9–11	12	10	2	12	....	100	.....	21	.....	4–35	[1] 18	.....
	Hebrew, 9–11	25	24	1	25	....	100	.....	19	.....	4–35	[2] 24	.....
	Boys	16	15	1	16	....	100	.....	18	.....	4–35	[2] 24	.....
	Girls	9	9	....	9	....	100	.....	21	.....	7–35	.....	.....
	12–14	37	32	3	35	2	94½+	5+	12	.....	4–22	38	32–45
	Boys	18	15	2	17	1	94−	5½+	11	.....	4–22	41½	[3]38–45
	Girls	19	17	1	18	1	94½+	5+	13	.....	4–22	[2] 32	.....
	15–above	100	87	10	97	3	97	3	12	.....	3–33	29	16–60
	Men	51	45	4	49	2	96+	3½+	12	.....	5–33	41	20–60
	Women	49	42	6	48	1	98−	2+	11	.....	3–27	21	16–25
	Illiterate:												
	10–11	4	2	1	3	1	75	25	21	.....	[1] 12–30	[2] 41	.....
	12–14	8	4	3	7	1	87½	12½	21	.....	15–32	38	22–47
	15–above	29	17	9	26	3	89½	10½	13	.....	6–30	31	11–70
	Men	21	14	6	20	1	95+	5−	12	.....	6–30	25	11–50
	Women	8	3	3	6	2	75	25	20	.....	14–28	45	20–70
	Italian	40	26	5	31	9	77½	22½	19	.....	5–79	22	8–40
	Men	20	16	1	17	3	85	15	17	.....	5–79	[2] 17	.....
	Women	20	10	4	14	6	70	30	22	.....	10–42	24	8–40
	Slav	40	14	21	35	5	87½	12½	25	.....	6–55	32	15–64
	Men	10	7	3	10	....	100	.....	30	.....	10–55	30	25–37
	Women	30	7	18	25	5	83⅓	16⅔	20	.....	6–36	32	15–64

[1] 2 cases. [2] 1 case.

SUMMARY OF RESULTS.

The results of the counting tests in all groups are presented below in combined form:

Counting 20 to 1.—This test was accomplished by all immigrants of the literate groups, all but three succeeding in the first trial. At trial 1 the time ranged from 6 to 40 seconds. The average time in 171 cases was 14½ seconds. Among the literates above the age of 9 the performance of this test was uninfluenced by age.

Of the 121 illiterates 112 succeeded in counting from 20 to 1, 8 of them succeeding at the second trial. At the first trial the time ranged from 7 to 60 seconds. The average time for the first trial in 104 cases was 23 seconds. Two members, or 50 per cent, of the *illiterate 10–11* group were unable to perform this test. The men of the *Slav* and *Italian illiterate* groups slightly excelled the women.

Counting 2 to 20 by 2's.—This test was accomplished by all members of the literate groups. All children under 12 years of age succeeded at trial 1. A Ruthenian boy, age 13, and a Spaniard, age 28, required 2 trials, although both had previously succeeded at the first trial in counting from 20 to 1. At trial 1, the time ranged from 2 to 27 seconds, the average time in 172 cases was 6½ seconds.

Among the illiterates, an Italian man, age 28, who had succeeded in counting from 20 to 1, failed in this test. A Ruthenian girl, age 17, failed on this test as well as on the 20 to 1 test, but succeeded in the two more difficult counting tests. Outside of these two cases all the illiterates, 119 out of 121, succeeded in counting from 2 to 20 by 2's, although 11 of them required 2 trials. At the first trial the time ranged from 4 to 45 seconds. The average time in 108 cases was $11\frac{3}{5}$ seconds.

Counting 20 to 2 by 2's.—This test was executed by 172 out of 174 literate immigrants, 9 successful immigrants requiring 2 trials. At the first trial the time ranged from 4 to 45 seconds, the average performance time in 163 cases was $11\frac{3}{4}$ seconds.

Among the illiterates 100 out of 121, or 75 per cent of every group with the exception of the *illiterate 10–11* group, succeeded with this test. Ninety-five per cent of the men and only 55 per cent of the women of the *Italian illiterate* group succeeded. Thirteen illiterate immigrants required 2 trials in order to succeed. At the first trial, time ranged from 5 to 70 seconds. The average time in 87 cases was $17\frac{2}{5}$ seconds. At the second trial, the time ranged from 16 to 67 seconds, the average time in 13 cases was 30 seconds.

Counting 3 to 30 by 3's.—This test was executed by 169 out of 174 literate immigrants, 16 of them requiring 2 trials. At the first trial the time ranged from 3 to 35 seconds, the average performance time being 16 seconds in 153 cases. At the second trial the time ranged from 16 to 60 seconds, the average performance time being $27\frac{1}{4}$ seconds in 16 cases.

Among the illiterates 102 out of 121 immigrants succeeded—that is, 75 per cent of every illiterate group succeeded in this test, although only 70 per cent of the Italian women qualified. Above the age of 9, so far as speed and accuracy of performance are concerned, no age difference has been observed. Above the age of 14 the illiterate men made a slightly better showing than the women. Thirty-nine illiterate immigrants, including 21 Slavs and 5 Italians, required 2 trials. At the first trial the time ranged from 5 to 79 seconds, the average time being 20 seconds in 63 cases. At the second trial, the time ranged from 8 to 70 seconds, the average time being 33 seconds in 39 cases.

DISCUSSION.

From the above results it appears that illiterate immigrant children, ages 10 and 11, in a quiet examination room 24 hours after arrival can not be expected to count from 20 to 1 by 2's, or even by 1's. However, after preliminary practice with the other counting tests, they may be expected to count from 3 to 30 by 3's.

The main fault with the experiment is that too few of this particular kind of alien were examined. As above pointed out, it was a

difficult matter to find European children over 9 years of age and under 12 who had not been to school.

The experiment also shows that the illiterate Italian women do not count backward by 2's and do not count forward by 3's so well as the other groups.

The following series show how the immigrant counted in either the first or the second trial. Records which were considered satisfactory because they contained not more than three mistakes are given first. An assist by the examiner, counted as a mistake, is indicated in a series by a number in parentheses. Intervals in the series indicate long pauses on the part of the subjects.

Counting 20 to 1:

20, 19 .... 18, 17 .... 16, 15 .... 14, 13 .... 12, 11, 10, 9, 8, 7, 6, 5, 4, 1.

20 take away 1, 19 take away 1, ... 18, 18 take away 1, 17, 17 take away 1, 16 .... 16 take away 1, 14, 14 take away 1, 13 (and so on down to 1).

20, 19, 19, 18 .... 18, 17 .... 17, 16 .... 16, 15 .... 15, 14 .... 14, 13, 13, 12 (and so on down to 1).

20, 19, 18, 19, 18, 17, 15, 16, 15, 14, 13, 12, 11, 10 (and so on down to 1).

20−1, 19; 19−1, 18; 18, 18−1, 16, (17); 17−1, 16; 16−1, 15 (and so on down to 1).

20 .... 19 .... 18 ... 16 .... 15 .... 14 .... 12 .... 11 .... 9 .... 8, 7 .... 6, 5, 4, 3, 2, 1.

Counting 2 to 20 (by 2's):

2 and 2, 4; 4 and 2, 6; 6 and 2, 8; 8 and 2, 10; (and so on up to 20).

And 2, 4, and 2, 6, and 2, 8, and 2, 10, and 2, 12 (and so on up to 20).

2 and 2, 4, 6, 8, 9, 10 and 2, 12, and 2, 14, 15 (16) and 2, 18, 20.

Counting 20 to 2 (by 2's):

20−2, 18; 18−2, 16; 16−2, 14; 14−2, 12; 12−2 (and so on down to 2).

20−2, 18; 16, 14, 13, (12), 10, 8, 7, (6), 4, 2.

Counting 3 to 3 (by 3's):

3 and 3, 6, and 3, 9, and 3, 12, and 3, 15, and 3, 17 (18), and 3, 21, and 3, 24, and 3, 28, and 3, 30.

6, 6, 9, 9, 12, 12, 15, 17 (18) .... 21, 24, 27.

3, 6, 9, 12, 15, 16 (18), 21, 23 (24), 27, 31.

Each of the following series show 4 mistakes or more. They were therefore scored as failures.

Counting 20 to 1:

20, 19, 17 .... 16, 14, 13, 12, 11, 10, 9, 8, 7, 6, 4, 3, 2, 0.

20−1. 19, 19−1, 17, 18−1, 16, 16−1, 14, 14−1, 13, 13−1, 12, 12−1, 11, 11−1, 12, 11−1, 10, 10−1, 9, 9−1, 8, 7, 6 (and so on down to 1).

20 .... 19 .... 18 .... 19 .... 19 .... 16 .... 15 .... 14 .... 13 .. 14 .... 14 .. (and so on down to 1).

Counting 2 to 20 (by 2's):

2 and 2, 4, and 2, 6, and 2, 7, (8), and 2, 10, 10 and 2, 11, (12), and 2, 13, (14), and 2, 16, and 22, 17, 19, and 2, 21.

Counting 20 to 2 (by 2's):

20−2, 19 (18), 18−2, 16, 16−2, 15 (14), 14−2, 13, 13−2, 11, 11−2, 9, 9−2, 7, 7−2, 4, 4−2, 2, 0.

Counting 3 to 30 (by 3's):

3 and 3, 6, and 3, 8 (9), and 3, 11 (12), and 3, 14, and 3, 17, and 3, 21, and 3, 23, and 3, 26, and 3, 30.

A number of immigrants who had failed to count from 20 to 1, invariably succeeded in counting from 10 to 1.

A number of immigrants who failed in the different counting tests at both trials gave sufficient evidence to show that they possessed real counting ability. Several who failed at the second trial, having made 4 or 5 mistakes, showed marked improvement over their first attempts. In most cases the first trial is really an index as to what numerical relationships the subject has absorbed, while the second trial is often a test in learning.

A number of immigrants, who succeeded after much laborious effort, exclaimed that this was the first time in their lives that they had accomplished such a feat. An important point to remember is that one who accomplishes this task with much effort for the first time may have a better mentality than one who can rattle off quickly a counting series. In the first case it may be an entirely new problem and be solved by purposive thinking. In the second case it may be simply an act of recall by an inferior intellect. This is an excellent example of the necessity of skilled diagnosticians to differentiate and decide upon cases of suspected mental deficiency. No age tests, point scales, or other standards can be trusted in cases of this kind.

Practically all immigrants above the age of 12 can count from 20 to 1. They learn to do this by a process of mental retracing. The ability to count forward in work or play implies that sooner or later the normal mind will see numerical relationships and will be able to count backward. For example, when one immigrant was asked how he had learned to count backward, he replied, "In minding a flock of sheep, several strayed away. This made me count backward." Another said, "One learns counting backward in watching the cattle in the field. I counted backward five years ago." It must be true also that the reversed associative process in counting backward is similarly impressed upon the peasant who sells his farm products or who accidentally breaks his eggs.

Some normal immigrants fail at first on the counting tests, but later succeed. It would seem that the first attempt is preparing them or getting their mental mechanism in form for a successful performance.

In this test or in any other test temporary emotional disturbance may mask real ability on the part of the subject.

All members of the *illiterate 15 and above* group succeeded in counting from 20 to 1 at the first trial, while 3 of them required 2 trials in counting from 2 to 20 by 2's, an obviously easier test. Other peculiar and interesting variations in immigrant psychology are brought out in the above summary.

Counting 2 to 20 by 2's was found to be the easiest counting test; counting 20 to 1 was a little more difficult; while counting 20 to 2 by 2's and 3 to 30 by 3's appear to be the most difficult.[1]

[1] Of the 121 illiterate immigrants, 119 succeeded in counting 2 to 20 by 2's, 112 in counting 20 to 1, 102 in counting 3 to 30 by 3's, and 100 in counting 20 to 2 by 2's.

ADDITION.

The following nine examples in addition were put to each immigrant to be solved mentally. Two trials were allowed for each:

3+4=	8+6=	2+3+4=
6+6=	15+15=	2+4+6+8=
6+7=	15+16=	17+13+9+4=

METHOD OF TESTING.

The interpreter said to the subject, "How many are 3 and 4?" repeating the question immediately. In the event of failure at this first trial, the interpreter again stated the question twice, and the immigrant's response concluded the second trial. This method was used in propounding all nine examples.

RESULTS.

The following table gives the results of these tests:

TABLE 3.—*Results of addition tests.*

Group.	Test.	Number successful.			Number failing.	Percentages.	
		First trial.	Second trial.	Total.		Successes.	Failures.
Literate, ages 9–11 (12 examined)	3+4	11	1	12	.....	100	.....
	6+6	12	.....	12	.....	100	.....
	6+7	10	2	12	.....	100	.....
	8+6	12	.....	12	.....	100	.....
	15+15	12	.....	12	.....	100	.....
	15+16	10	1	11	1	$91\frac{2}{3}$	$8\frac{1}{3}$
	2+3+4	11	.....	11	1	$91\frac{2}{3}$	$8\frac{1}{3}$
	2+4+6+8	9	3	12	.....	100	.....
	17+13+9+4	6	3	9	3	75	25
Hebrew literate, ages 9–11 (25 examined).	3+4	24	1	25	.....	100	.....
	6+6	25	.....	25	.....	100	.....
	6+7	24	1	25	.....	100	.....
	8+6	22	3	25	.....	100	.....
	15+15	25	.....	25	.....	100	.....
	15+16	24	.....	24	1	96	4
	2+3+4	17	8	25	.....	100	.....
	2+4+6+8	18	5	23	2	92	8
	17+13+9+4	14	5	19	6	76	24
Literate, ages 12–14 (37 examined).	3+4	34	2	36	1	97+	$2\frac{1}{2}$+
	6+6	36	.....	36	1	97+	$2\frac{1}{2}$+
	6+7	36	1	37	.....	100	.....
	8+6	36	1	37	.....	100	.....
	15+15	37	.....	37	.....	100	.....
	15+16	34	1	35	2	$94\frac{1}{2}$+	5+
	2+3+4	30	6	36	1	97+	$2\frac{1}{2}$+
	Boys (18)	15	2	17	1	94+	$5\frac{1}{2}$+
	Girls (19)	15	4	19	.....	100	.....
	2+4+6+8	26	8	34	3	$91\frac{1}{2}$+	8+
	Boys (18)	12	4	16	2	89−	11+
	Girls (19)	14	4	18	1	$94\frac{1}{2}$+	5 +
	17+13+9+4	21	7	28	9	$75\frac{1}{2}$+	24 +
	Boys (18)	14	.....	14	4	78−	22 +
	Girls (19)	7	7	14	5	$73\frac{1}{2}$+	26+

TABLE 3.—*Results of addition tests*—Continued.

Group.	Test.	Number successful.			Number failing.	Percentages.	
		First trial.	Second trial.	Total.		Successes.	Failures.
Literate, ages 15 and above (100 examined).	3+4	97	3	100	.....	100	.....
	6+6	100	.....	100	.....	100	.....
	6+7	94	6	100	.....	100	.....
	8+6	88	9	97	3	97	3
	15+15	98	1	99	1	99	1
	15+16	92	5	97	3	97	3
	2+3+4	76	16	92	8	92	8
	Men (51)	33	7	46	5	90+	9½+
	Women (49)	37	9	46	3	93½+	6+
	2+4+6+8	57	22	79	21	79	21
	Men (51)	29	13	42	9	82+	17½+
	Women (49)	28	9	37	12	75½	24½
	17+13+9+4	56	16	72	28	72	28
	Men (51)	31	10	41	10	80+	19½+
	Women (49)	25	6	31	18	63+	36½+
Illiterate, ages 10–11 (4 examined).	3+4	3	1	4	.....	100	.....
	6+6	3	.....	3	1	75	25
	6+7	2	.....	2	2	50	50
	8+6	2	1	3	1	75	25
	15+15	2	1	3	1	75	25
	15+16	2	.....	2	2	50	50
	2+3+4	2	1	3	1	75	25
	2+4+6+8	3	.....	3	1	75	25
	17+13+9+4	.....	.....	.....	4	.....	100
Illiterate, ages 12–14 (8 examined).	3+4	8	.....	8	.....	100	.....
	6+6	8	.....	8	.....	100	.....
	6+7	5	3	8	.....	100	.....
	8+6	7	1	8	.....	100	.....
	15+15	7	.....	7	1	87½	12½
	15+16	7	.....	7	1	87½	12½
	2+3+4	5	2	7	1	87½	12½
	2+4+6+8	4	2	6	2	75	25
	17+13+9+4	1	1	2	6	25	75
Illiterate, ages 15 and above (29 examined).	3+4	26	2	28	.....	100	.....
	6+6	27	1	28	.....	100	.....
	6+7	24	2	26	2	93−	7+
	8+6	20	8	28	.....	100	.....
	15+15	27	.....	27	1	96+	3½+
	15+16	26	1	27	1	96+	3½+
	2+3+4	20	7	27	1	96+	3½+
	Men (20)	14	5	19	1	95	5
	Women (8)	6	2	8	.....	100	.....
	2+4+6+8	8	12	20	8	71+	28½+
	Men (20)	8	8	16	4	80	20
	Women (8)	.....	4	4	4	50	50
	17+13+9+4	7	4	11	17	39+	60½+
	Men (20)	5	3	8	12	40	60
	Women (8)	2	1	3	5	37½	62½
Italian illiterate (40 examined, 20 men and 20 women).	3+4	38	2	40	.....	100	.....
	Men	18	2	20	.....	100	.....
	Women	20	.....	20	.....	100	.....
	6+6	38	1	39	1	97½	2½
	Men	19	19	.....	1	95	5
	Women	19	1	20	.....	100	.....
	6+7	37	1	38	2	95	5
	Men	17	1	18	2	90	10
	Women	20	.....	20	.....	100	.....
	8+6	31	6	37	3	92½	7½
	Men	13	6	19	1	95	5
	Women	18	.....	18	2	90	10
	15+15	30	4	34	6	85	15
	Men	17	1	18	2	90	10
	Women	13	3	16	4	80	20
	15+16	28	3	31	9	77½	22½
	Men	18	.....	18	2	90	10
	Women	10	3	13	7	65	35
	2+3+4	20	12	32	8	80	20
	Men	10	7	17	3	85	15
	Women	10	5	15	5	75	25
	2+4+6+8	12	9	21	19	52½	47½
	Men	10	5	15	5	75	25
	Women	2	4	6	14	30	70
	17+13+9+4	6	6	12	28	30	70
	Men	6	5	11	9	55	45
	Women	.....	1	1	19	5	95

TABLE 3.—*Results of addition tests*—Continued.

Group.	Test.	Number successful.			Number failing.	Percentages.	
		First trial.	Second trial.	Total.		Successes.	Failures.
Slav illiterate (40 examined, 10 men and 30 women).	3+4	38	2	40	.....	100	.....
	Men	10	.....	10	.....	100	.....
	Women	28	2	30	.....	100	.....
	6+6	40	.....	40	.....	100	.....
	Men	10	.....	10	.....	100	.....
	Women	30	.....	30	.....	100	.....
	6+7	31	7	38	2	95	5
	Men	7	2	9	1	90	10
	Women	24	5	29	1	96⅔	3⅓
	8+6	29	8	37	3	92½	7½
	Men	9	1	10	.....	100	.....
	Women	20	7	27	3	90	10
	15+15	36	2	38	2	95	5
	Men	10	.....	10	.....	100	.....
	Women	26	2	28	2	93⅓	6⅔
	15+16	35	3	38	2	95	5
	Men	10	.....	10	.....	100	.....
	Women	25	3	28	2	93⅓	6⅔
	2+3+4	21	16	37	3	92½	7½
	Men	6	4	10	.....	100	.....
	Women	15	12	27	3	90	10
	2+4+6+8	17	16	33	7	82½	17½
	Men	4	4	8	2	80	20
	Women	13	12	25	5	83⅓	16⅔
	17+13+9+4	7	8	15	25	37½	62½
	Men	3	2	5	5	50	50
	Women	4	6	10	20	33⅓	66⅔

SUMMARY OF RESULTS.

With the exception of the *literate 15 and above* group, 75 per cent of the members of all literate groups succeeded with all the tests in addition.

Only 72 per cent of the members of the *literate 15 and above* group and 73½ per cent of the girls of the *literate 12–14* group succeeded in the 17+13+9+4 test. There was little if any trouble with the other tests in addition. The literate children from 9 to 11 years of age excelled their elders.

Among the illiterates less than 75 per cent of some groups succeeded in executing certain tests in addition, as follows:

Ages 10–11: 17+13+9+4, 15+16, 6+7.
Ages 12–14: 17+13+9+4.
Ages 15–above: 17+13+9+4.
Ages 15–above (women): 17+13+9+4, 2+4+6+8.
Italian: 17+13+9+4.
Italian women: 17+13+9+4, 2+4+6+8, 15+16.
Slav: 17+13+9+4.

It must be remembered that in almost every group that failed were to be found individuals who performed every example.

DISCUSSION.

Addition is one of the most useful tests in the mental examination of arriving immigrants. It is employed at the line inspection, at the secondary examination, and in the final certification tests.

In textbooks on experimental psychology simple tests in addition are put down as tests in controlled association. In every combination of digits the mental associative processes bring about a definite result, the sum. Among arriving aliens addition is a test in memory or reasoning, depending upon the character of the example and the previous arithmetical accomplishment of the individual. The series of tests here given are of two kinds. An individual can answer one set by giving forth fixed associations, while the other set can be solved only after associative activity combined with analytic and synthetic thinking. In performing the first set of tests a memory feat is executed. In performing the second set reasoning ability is displayed.

Owing to formal training in school and consequent mathemetical thinking in the practical affairs of every-day life, the literate immigrant has formed many fixed associations in regard to numbers. Hence in answering these questions in addition many literate immigrants reply almost immediately by giving forth their fixed associations—such as 9 and 7 are 16. It is with them a simple matter of recall. On the other hand, the illiterate immigrant may have a few fixed associations composed of unit digits only. He has not had an arithmetical foundation. Hence, when he meets the example 15+15, an example composed of digits above the unit series, he is facing a real problem. Perhaps it is the first time in his life that such a difficult question has been asked him. In order to solve it he must consider the component digits, perhaps breaking up each into smaller digits. He must call upon his limited supply of fixed associations, or in their absence he must use his fingers in computing. He is compelled to retain certain steps in the process and make combinations with these steps. He must keep continually in mind the original numbers and the purpose for which he is working. He will succeed only after much striving, which is often evinced by a long pause, a facial expression of effort, and a sigh of relief when the goal is reached. When he has answered 30 he has accomplished a feat in reasoning. It may be just as difficult for an illiterate to find the sum of 15 and 15 as it is for a literate to find the sum of 17, 13, 9, and 4, the mental processes in the two instances being essentially the same.

It has been possible during the experiment to understand the exact mental process of certain illiterate immigrants because they mumbled the various steps in a low or whispered voice. For example:

In solving 15+15 one said, "20 and 20, 40; take away 5, 35; take away 5, 30, *30.*"

In computing 8+6 one said, "8 and 2, 10; 10 and 2, 12; and 2, 14, *14.*"

In attempting to solve 17+13+9+4 one immigrant in a whisper handled the first part of the problem this way: "17 and 13, 17 and 13,

17 is 15 and 2, 13 is 5, 5 and 3, 15 20 25 28, *28*." In this case he forgot to add the 2 from his first analysis.

Some other peculiarities in the mental mechanism noticed in this test are of interest and will be mentioned.

In adding 17, 13, 9, and 4 several immigrants forgot to add the 9 and responded by saying 34. Others forgot the 4 and responded by saying 39. A common mistake in adding $2+4+6+8$ was to lose the 6 and reply 14. A number of immigrants who failed to add $15+15$ and $15+16$ succeeded in adding $2+3+4$.

When asked how much are 3 and 4, a bright Norwegian responded 12. He was then asked how many are 3 apples and 4 apples, to which he replied 12. He succeeded in getting all the other additions tests, even getting $17+13+9+4$ with ease. In the first trial he evidently assumed that 3×4 was wanted and held on to this faulty assumption in the second trial. Mistakes are often caused by similar false assumptions on the part of the normal subject.

A number who failed at trial 2 succeeded at a third trial, but the result of such trial was not officially recorded.

Sometimes, after a subject has been doing well, he suddenly begins to do poorly. Some accidental circumstance has occurred or some peculiar motive has influenced his action. In some of these cases it is believed that the immigrant feels that he is in for a long examination and wishes to terminate it by slipshod answers.

As above pointed out all immigrants, even illiterates, have a few fixed associations—that is, they have stored away in their minds the various sums of unit digits and the sums of unit digits taken twice. In other words they will know that 2 and 3 are 5, 4 and 5 are 9, as well as that 7 and 7 are 14, 10 and 10 are 20. Some illiterates have fixed associations established between an odd and even figure, as 9 and 8 are 17. The majority of illiterate immigrants, however, arrive at these last sums by the process of inference, which in this case is really an elementary reasoning process. It may be thus demonstrated in the example of $6+7$:

6+6 is 12.
6+7 is 1 more than 6+6.
Therefore, 6+7 is 13.

Even though excited, it is usually easier for an immigrant who possesses fixed associations to make the correct response in simple sums than to do otherwise.

In these tests some who are unfamiliar with addition immediately grasp the idea as to what is wanted and set about the task by counting on their fingers. These particular individuals have no fixed associations upon which to call, hence they resort to another form of purposive thinking. Some illiterate immigrants, having a limited supply of fixed associations and capable of making inferences therefrom,

resort to counting on their fingers because of a disturbed emotional state at the time of the examination.

The fact that an immigrant, especially if he be an illiterate, has a large number of fixed arithmetical associations—that is, adds readily—augurs well for him, because it shows that his mind has been developing in the past.

It is important to emphasize that often a single examination does not show what the immigrant really knows. At times, in order to ascertain the mental ability along a certain line, two or more examinations have to be made at widely separated intervals. Furthermore, the second part of a single examination often throws true light upon a mental function which the first part failed to show. In this connection may be cited the cases [1] of two Russian children, brother and sister, ages 10 and 11, respectively. Neither they nor their relatives or friends had ever been to school; in fact, there was not a school in the village from which they came. In the adding tests they had difficulty in counting with their fingers. However, 5 minutes later, they did comparatively well with the problems which involved the double process of addition and multiplication. In these cases the examples in addition appear to have prepared them for the more difficult task of problem solving. Both of these immigrants had excellent correlations in the other tests.

Very exceptionally intelligent immigrants who have stood well throughout the examination have no number associations. In striving to obtain the sum of two or three digits these particular individ-

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[1] The records of these two cases are given below. A indicates success at first trial, A_2 success at second trial, a numeral the particular wrong reply given, and O a "give up." A semicolon separates records of the first and second trials. In the case of problems the time of performance, in seconds, is indicated.

Russian (male, 10, no schooling):

Addition.

3+4=6; A_2	8+ 6= 0; 900	2+ 3+4=7; 7
6+6. A	15+15=20; A_2	2+ 4+6+8 } not attempted.
6+7=19; 8	15+16=50; O	17+13+9+4 } not attempted.

Problems (5 minutes later).

How many legs have—?

Horse+man+chicken. A (13 seconds).
2 horses+2 men. A (18 seconds).
3 horses+2 men=12 (33 seconds). A_2 (40 seconds).
Horse+2 men+3 chickens=12 (55) seconds; 12 (35 seconds).

Russian (female, 11, no schooling):

Addition.

3+4. A	8+ 6=13; A_2	2+ 3+4=6; A_2
6+6=10; 13	15+15=25; 27	2+ 4+6+8. A
6+7=10; 14	15+16=O	17+13+9+4=O

Problems (5 minutes later).

How many legs have—?

Horse+man+chicken. A (10 seconds).
2 horses+2 men. A (18 seconds).
2 horses+2 men. A (18 seconds).
3 horses+2 men. A (20 seconds).
Horse+2 men+3 chickens=12 (33 seconds); A_2 (18 seconds)

uals will make a good guess; they will come close even if they do not arrive at the exact sum—that is, they will show good judgment even in their incorrect replies.

From the above discussion it is clear that what is a good response for one immigrant may be a bad response for another of the same age. The classification of every reply depends upon many factors. It depends upon the previous and present physical condition of the subject; upon his emotional state and other psychic states at the time of the examination; upon his race, schooling, training, and other opportunities; upon the examination room, number of times examined, method of examiner, and upon other factors. An immigrant's reply can not be accurately analyzed or graded by a rigid standard. It must be considered and weighed in conjunction with many other factors, and for this the judgment of a trained and experienced diagnostician is needed.

SUBTRACTION.

The interpreter said to each subject: "If from 6 apples 2 apples are taken away, how many remain?" He immediately repeated the question. If the immigrant gave an incorrect answer, the question was again asked twice in the same way.

From the following table it may be seen that 75 per cent of every group was able to subtract 2 concrete objects from 6 and 5 from 12.

TABLE 4.—*Results of subtraction tests.*

Group.	Number examined.	Subtracting 2 apples from 6 apples.						Subtracting 5 apples from 12 apples.					
		Number successful.			Number failing.	Percentages.		Number successful.			Number failing.	Percentages.	
		First trial.	Second trial.	Total.		Successes.	Failures.	First trial.	Second trial.	Total.		Successes.	Failures.
Literate:													
9–11	12	12	.....	12	.....	100	.....	8	4	12	.....	100	.....
Hebrew, 9–11	25	25	.....	25	.....	100	.....	20	5	25	.....	100	.....
12–14	37	37	.....	37	.....	100	.....	28	6	34	3	91½+	8+
15-above	100	100	.....	100	.....	100	.....	88	11	99	1	99	1
Illiterate:													
10–11	4	4	.....	4	.....	100	.....	2	1	3	1	75	25
12–14	8	8	.....	8	.....	100	.....	6	1	7	1	87½	12½
15-above	29	28	1	29	.....	100	.....	25	3	28	1	96½+	3+
Italian	40	36	4	40	.....	100	.....	26	8	34	6	85	15
Men	20	17	3	20	.....	100	.....	18	1	19	1	95	5
Women	20	19	1	20	.....	100	.....	8	7	15	5	75	25
Slav	40	40	.....	40	.....	100	.....	26	9	35	5	87½	12½
Men	10	10	.....	10	.....	100	.....	6	4	10	.....	100	.....
Women	30	30	.....	30	.....	100	.....	20	5	25	5	83⅓	16⅔

DIVISION.

Each immigrant was asked: "If 20 apples are divided equally among 4 persons, how many apples does each person receive?" As in other arithmetical tests, the question was given twice at each of 2 trials. The results follow.

TABLE 5.—*Results of division test (20 apples divided among 4 persons).*

Group.	Number examined.	Number succeeding.			Number failing.	Percentages.	
		First trial.	Second trial.	Total.		Successes.	Failures.
Literate:							
9-11	12	10	2	12	.....	100	.....
Hebrew, 9-11	25	23	1	24	1	96	4
12-14	37	32	3	35	2	94½+	5 +
15-above	100	87	9	96	4	96	4
Illiterate:							
10-11	4	3	1	4	.....	100	.....
12-14	8	6	2	8	.....	100	.....
15-above	29	25	2	27	2	93 +	6½+
Men	21	21	.....	21	.....	100	.....
Women	8	4	2	6	2	75	25
Italian	40	32	6	38	2	95	5
Men	20	18	1	19	1	95	5
Women	20	14	5	19	1	95	5
Slav	40	30	5	35	5	87½	12½
Men	10	10	.....	10	.....	100	.....
Women	30	20	5	25	5	83⅓	16⅔

From this table it may be seen that at least 75 per cent of every group or subgroup succeeded with this test. The two groups, *illiterate 10-11* and *illiterate 12-14*, from whom would be theoretically expected the poorest record, made perfect scores. The test shows that division is a more infrequent arithmetical process among immigrants than either addition or subtraction. In many borderline cases that are hard to dispose of, it is believed that the ability to divide and to know when to divide, shown by repeated demonstrations, favors the supposition that the immigrant subject possesses to a considerable extent the power for abstract thinking.

PROBLEMS.

Each immigrant was asked to solve mentally eight arithmetical problems, seven of which were arranged supposedly in an order of increasing difficulty. Of the problems three were simple and five, involving two fundamental operations, complex. The problems and the order in which they were given are as follows:

(1) If you have 20 cents and you spend 3 cents for bread and 4 cents for meat, how many cents will you have left?

How many legs have—

(2) 1 horse.
(3) 2 horses.
(4) 3 horses.
(5) horse + man + chicken.
(6) 2 horses + 2 men.
(7) 3 horses + 2 men.
(8) horse + 2 men + 3 chickens.

METHOD OF TESTING.

If the subject at first failed to obtain the correct answer, a second trial was given, the interpreter repeating the question at both trials. In the case of problems 1, 5, 6, 7, and 8, time was taken with stop watch from the instant the interpreter said the last word until the

immigrant responded. Sometimes the immigrant questioned the examiner after the problem had been propounded. Such questioning was included in the immigrant's performance time. This was one cause for delay in the solution of the problems.

RESULTS.

The following table gives the results of these tests:

TABLE 6.—*Results of problems.*

Group.	Problem.	Number succeeding.			Number failing.	Percentages.		Time required for success.			
								First trial.[1]		Second trial.[1]	
		First trial.	Second trial.	Total.		Successes.	Failures.	Average time.	Time ranged between—	Average time.	Time ranged between—
								Secs.	*Secs.*	*Secs.*	*Secs.*
Literate, 9–11 (12 examined).	20—(3+4)	5	4	9	3	75	25	22	[2]0–110	20	5–34
	1 horse[3]	12	....	12	....	100	.....	.....	.....	.....	.....
	2 horses	12	....	12	....	100	.....	.....	.....	.....	.....
	3 horses	12	....	12	....	100	.....	.....	.....	.....	.....
	Horse+man+chicken	11	1	12	....	100	.....	4	0–15	[4]4	.....
	2 horses+2 men	10	2	12	....	100	.....	6	0–18	[5]10½	[5]2–19
	3 horses+2 men	9	3	12	....	100	.....	10	0–30	5	0–10
	Horse+2 men+3 chickens	10	2	12	....	100	.....	9	0–18	21½	[5]0–43
Hebrew literate, 9–11 (25 examined).	20—(3+4)	22	....	22	3	88	12	5	0–32	.....	.....
	1 horse	25	....	25	....	100	.....	.....	.....	.....	.....
	2 horses	25	....	25	....	100	.....	.....	.....	.....	.....
	3 horses	24	1	25	....	100	.....	.....	.....	.....	.....
	Horse+man+chicken	19	6	25	....	100	.....	4	0–14	1½	0–5
	2 horses+2 men	21	4	25	....	100	.....	2½	0–8	5½	3–9
	3 horses+2 men	21	4	25	....	100	.....	4½	0–9	5	1–10
	Horse+2 men+3 chickens	17	7	24	1	96	4	5½	0–14	12	0–24
Literate, 12–14 (37 examined).	20—(3+4)	30	4	34	3	91½+	8+	4	0–24	26½	0–55
	Boys (18)	16	1	17	1	94+	5½+	3	0–24	[5]55	.....
	Girls (19)	14	3	17	2	89+	10½+	5	0–22	17	0–45
	1 horse	37	....	37	....	100	.....	.....	.....	.....	.....
	2 horses	37	....	37	....	100	.....	.....	.....	.....	.....
	3 horses	35	2	37	....	100	.....	.....	.....	.....	.....
	Horse+man+chicken	33	3	36	1	97+	2½+	3½	0–20	14	0–22
	2 horses+2 men	28	6	34	3	92—	8+	3½	0–28	9	0–22
	3 horses+2 men	30	6	36	1	97+	2½+	4½	0–22	5	0–20
	Horse+2 men+3 chickens	25	9	34	3	92—	8+	.....	.....	.....	.....
Literate, 15 and above (100 examined).	20—(3+4)	79	16	95	5	95	5	3½	0–50	12	0–72
	Men (51)	43	6	49	2	96+	3½+	5	0–50	6	0–21
	Women (49)	36	10	46	3	94—	6+	2	0–22	16	0–72
	1 horse	100	....	100	....	100	.....	.....	.....	.....	.....
	2 horses	100	....	100	....	100	.....	.....	.....	.....	.....
	3 horses	99	1	100	....	100	.....	.....	.....	.....	.....
	Horse+man+chicken	89	10	99	1	99	1	2	0–27	2	0–7
	2 horses+2 men	89	10	99	1	99	1	2	0–8	3½	0–16
	3 horses+2 men	87	12	99	1	99	1	2½	0–11	8	2–27
	Horse+2 men+3 chickens	67	23	90	10	90	10	5	0–24	5	0–20
Illiterate, 10–11 (4 examined).	20—(3+4)	....	3	3	1	75	25	.....	.....	.....	.....
	1 horse	4	....	4	....	100	.....	.....	.....	.....	.....
	2 horses	4	....	4	....	100	.....	.....	.....	.....	.....
	3 horses	4	....	4	....	100	.....	.....	.....	.....	.....
	Horse+man+chicken	4	....	4	....	100	.....	8	0–13	.....	.....
	2 horses+2 men	4	....	4	....	100	.....	13½	2–18	.....	.....
	3 horses+2 men	3	1	4	....	100	.....	14	6–20	[4]40	.....
	Horse+2 men+3 chickens	2	1	3	1	75	25	17	[5]4–30	[4]18	.....

[1] Only those who succeeded in the trial are considered.
[2] "0" stands for "instantaneous."
[3] Problem was: "How many legs have —? " supplying the words given in this table.
[4] 1 case.
[5] 2 cases.

TABLE 6.—*Results of problems*—Continued.

Group.	Problem.	Number succeeding.			Number failing.	Percentages.		Time required for success.			
								First trial.		Second trial.	
		First trial.	Second trial.	Total.		Successes.	Failures.	Average time.	Time ranged between—	Average time.	Time ranged between—
								Secs.	*Secs.*	*Secs.*	*Secs.*
Illiterate, 12-14 (8 examined).	20—(3+4)	2	3	5	3	62½	37½	26	[1] 7-45	21	10-43
	1 horse [5]	8	....	8	....	100	.....	.....	.....	.....	.....
	2 horses	8	....	8	....	100	.....	.....	.....	.....	.....
	3 horses	8	....	8	....	100	.....	.....	.....	.....	.....
	Horse+man+chicken	8	....	8	....	100	.....	4	0-12	.....	.....
	2 horses+2 men	6	2	8	....	100	.....	4½	0-8	16	[1] 15-17
	3 horses+2 men	7	....	7	1	87½	12½	11	2-37	.....	.....
	Horse+2 men+3 chickens	5	3	8	....	100	.....	12	5-25	29	4-60
Illiterate, 15 and above (29 examined).	20—(3+4)	17	2	19	10	65½	34½	3	0-14	23	[1] 11-35
	Men (21)	16	1	17	4	81—	19+	3	0-14	[2] 35	.....
	Women (8)	1	1	2	6	25	75	[2] 0	.....	[2] 11	.....
	1 horse	29	....	29	....	100	.....	.....	.....	.....	.....
	2 horses	29	....	29	....	100	.....	.....	.....	.....	.....
	3 horses	25	3	28	1	96½	3½	.....	.....	.....	.....
	Horse+man+chicken	23	5	28	1	96½	3½	3½	0-11	6	2-16
	2 horses+2 men	26	2	28	1	96½	3½	3½	0-15	4½	[2] 3-6
	3 horses+2 men	25	2	27	2	93+	6½+	5	0-21	6½	[1] 1-12
	Horse+2 men+3 chickens	14	11	25	4	86+	13½+	11	0-40	12	0-44
Italian illiterate (40 examined).	20—(3+4)	20	7	27	13	67½	32½	3	0-27	14	0-45
	Men (20)	15	2	17	3	85	15	2	0-27	.....	.....
	Women (20)	5	5	10	10	50	50	5	0-14	9	0-45
	1 horse	40	....	40	....	100	.....	.....	.....	.....	.....
	2 horses	38	2	40	....	100	.....	.....	.....	.....	.....
	3 horses	36	2	38	2	95	5	.....	.....	.....	.....
	Horse+man+chicken	31	7	38	2	95	5	4½	0-15	2	1-5
	2 horses+2 men	30	8	38	2	95	5	4½	0-16	5½	0-15
	3 horses+2 men	31	4	35	5	87½	12½	6½	0-21	5	0-8
	Horse+2 men+3 chickens	18	10	28	12	70	30	7½	0-22	7	2-15
Slav illiterate (40 examined).	20—(3+4)	18	12	30	10	75	25	19	0-75	16	0-43
	Men (10)	5	4	9	1	90	10	18	0-52	17	6-40
	Women (30)	13	8	21	9	70	30	20	0-75	15	0-43
	1 horse	40	....	40	....	100	.....	.....	.....	.....	.....
	2 horses	39	1	40	....	100	.....	.....	.....	.....	.....
	3 horses	36	4	40	....	100	.....	.....	.....	.....	.....
	Horse+man+chicken	38	2	40	....	100	.....	3	0-14	3	[1] 0-6
	2 horses+2 men	37	3	40	....	100	.....	4½	0-18	9	0-18
	3 horses+2 men	30	7	37	3	92½	7½	10½	0-43	13	0-27
	Horse+2 men+3 chickens	19	17	36	4	90	10	15½	0-48	27½	0-80

[1] 2 cases. [2] 1 case.

SUMMARY OF RESULTS.

Seventy-five per cent of every literate group succeeded in the problem 20—(3+4). The immigrants in the older literate groups excelled those in the younger. The men and boys slightly excelled the girls.

Among the illiterates, 75 per cent of the following groups or subgroups succeeded: *Illiterate 10–11*, men of the *illiterate 15 and above*, men of the *Italian illiterate*, men of the *Slav illiterate*. Less than 75 per cent of the following groups or subgroups succeeded: *Illiterate, 12–14*, women of the *illiterate 15 and above*, women of the *Italian illiterate*,

women of the *Slav illiterate*. Hence the men excelled the women in this test. The women of the Slav illiterate group excelled the other women examined.

The simple leg problems (2–4), which were merely tasks in multiplication, were correctly answered by all literates and illiterates with the exception of 3, a Hebrew girl, age 17, and 2 Italian girls, ages 17 and 19.

The complex leg problems (5–8), involving the double operation of multiplication and addition, were well performed by all literate groups. Among the literate immigrants there were only 22 failures on the four problems. Seventy per cent of the *Italian illiterate* group succeeded on the Horse + 2 men + 3 chickens problem. Seventy-five per cent of the *Italian illiterate* group succeeded on the other three complex leg problems. Seventy-five per cent of all other illiterate groups succeeded in every complex leg problem.

DISCUSSION.

Problems similar to the complex ones used in these tests bring out reasoning ability and are therefore excellent tests to employ in the mental examination of suspected defectives among arriving immigrants.

When a complex problem is presented for mental solution, the sagacity of the normal immigrant enables him to look into the problem, analyze it, and select the proper method for its solution. His arithmetical acquisition then enables him to apply the method. An immigrant, however, may be sagacious—that is, able to select the proper method—but be unable to apply this method, or he may be able to apply a method but not able to select the correct method.

In either case his reasoning ability is at fault. It is believed that sagacity is more often lacking in defective immigrants than is the ability to apply methods. An immigrant may give 12 or 14 as his answer to the problem $20-(3+4)$. If such an answer be given after considerable pause, it may be strongly suspected that the immigrant selected the proper method but made a slight mistake in applying it.

Very often a normal immigrant who possesses both sagacity and learning fails in the solution of a problem because of some interposed factor, such as emotional disturbance. In order to say definitely, therefore, that an immigrant possesses subnormal reasoning ability, failure with problems should occur at successive examinations. Repetition of similar problems will also clear up doubtful points in regard to the subject's reasoning ability.

In the $20-(3+4)$ problem, the illiterate men excelled the women. Perhaps the practical affairs of life outside the home which the men

experience and the emotionalism frequently noticed in women are partly accountable for the differences here exhibited.[1]

The complex leg problems involving the two fundamental operations of multiplication and addition were solved by all but one group, regardless of age, sex, and race. It was frequently noticed in the solution of the leg problems that one or two failures were followed by a succession of correct responses. This indicated that the subject's mind was being gradually prepared for a good performance. In this connection it is important to bear in mind that whenever an attempt is made to find the mental ability along a certain line, a preliminary practice or warming up should be indulged in before the test proper is applied.

[1] The problem 20—(3+4) was the first to be propounded. It is thought that if it had followed the leg problems a much better result with it would have been obtained. It is also thought that if several of such problems had been propounded a better result would have been obtained. If similar problems had been propounded to the same immigrants on the following day no doubt more successful solutions would have been obtained. These suppositions are based upon experience gained in the routine mental examination of arriving immigrants and the fact that in the present test a number who failed at two trials succeeded at a third trial not tabulated above.

MEMORY TESTS (NONARITHMETICAL).

REPORT.

The Report Test [1] is composed of two parts, narrative and interrogatory. It was applied by exposing a picture of a village (Fig. 1) to the immigrant for a period of 20 seconds, immediately afterwards getting him to name as many details of the picture as he could recall and then questioning him in regard to his memory of the picture.

METHOD OF TESTING.

The immigrant was somewhat prepared for the test, as he had just previously performed the Visual Apprehension Test (see p. 32), which was similar in many ways.

The interpreter said to the subject:

The examiner is about to show you a picture, look well at it. Try to remember as many different objects in the picture as you can.

The examiner then exposed the picture to the subject for a period of 20 seconds. As the picture during exposure faced the window, good light was thrown on it in every instance.

Immediately after the exposure the subject mentioned the different details which he had observed. This constituted *the narrative* and was carefully recorded on the examination chart. The subject was given plenty of time in which to recall what he had seen.

When the picture had been taken away, the *interrogatory*, in the form of five questions, was then propounded.

Two of the questions pertained to details that were in the picture. The third question permitted of several answers, while the last two questions referred to details not actually present.

The questions of the interrogatory were as follows:

(1) Did you see the church?
(2) Did you see the steps?
(3) Is the horse white?
(4) Did you see the dog?
(5) Did you see the man?

The replies to these questions, usually in the form of "yes" or "no," were written opposite the questions on the examination chart.

[1] This test is a modified form of the Report Test described in Whipple, Guy Montrose: Manual of Mental and Physical Tests, 1911.

RESULTS.

The results of this test, indicating the number of immigrants recalling a certain number of details, the number giving imaginary

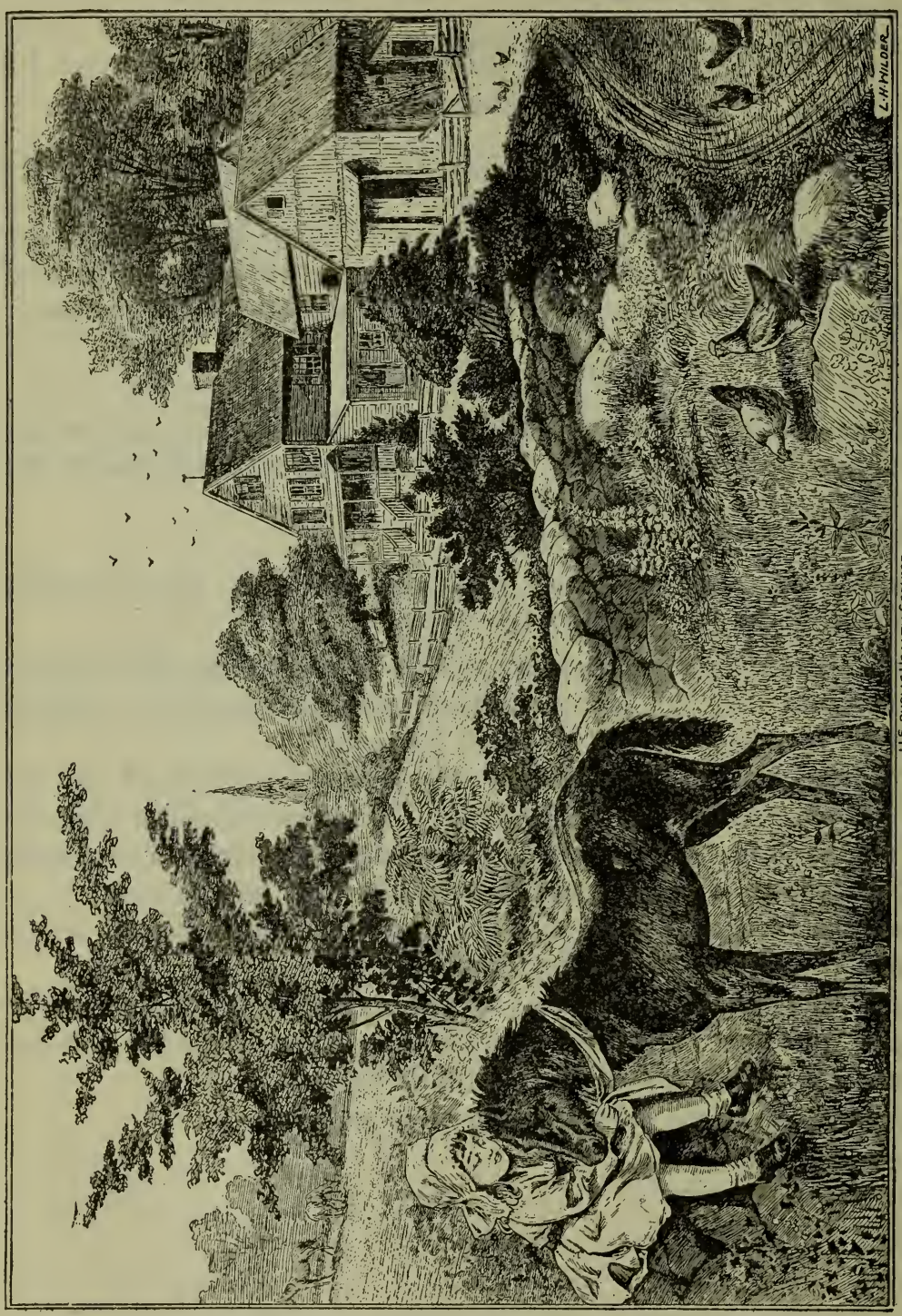

FIG. 1.—"A Village." Taken from illustration, 16 by 11 inches in size, used in Report Test.

details, and the number making correct answers or mistakes in the interrogatory, are shown in the following table:

TABLE 7.—*Results of Report Test.*

Group.	Number examined.	Narrative. Number of aliens recalling different details of picture.												Number of aliens naming imaginary objects.				Interrogatory. Number of aliens making mistakes.				
		14 details.	13 details.	12 details.	11 details.	10 details.	9 details.	8 details.	7 details.	6 details.	5 details.	4 details.	3 details.	1 imaginary object named.	2 imaginary objects named.	3 imaginary objects named.	7 imaginary objects named.	0 mistakes.	1 mistake.	2 mistakes.	3 mistakes.	4 mistakes.
Literate:																						
9–11	12	..	..	..	..	..	4	..	2	3	3	..	..	4	..	..	..	2	3	4	3	..
Hebrew, 9–11	25	..	..	..	..	1	4	4	6	6	4	..	..	1	..	..	..	2	7	15	1	..
12–14—																						
Boys	18	1	..	2	..	2	2	3	4	2	2	..	..	2	..	..	..	..	6	8	4	..
Girls	19	..	..	..	..	1	1	4	7	5	1	..	..	3	..	..	..	7	4	5	3	..
15-above—																						
Men	51	..	..	2	3	6	12	8	7	8	4	1	..	22	2	1	..	4	20	23	2	2
Women	49	..	1	..	4	2	3	13	11	10	4	1	..					13	18	15	2	1
Illiterate:																						
10–11	4	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..	1	1	2	..	..
12–14	8	..	..	..	..	..	..	2	3	3	..	..	..	1	..	..	..	1	3	3	1	..
15–above—																						
Men	21	..	..	..	..	1	4	1	8	4	1	2	..	..	1	..	..	5	4	9	3	..
Women	8	..	..	..	..	1	..	..	..	4	2	1	..	..	..	..	..	3	..	2	3	..
Italian—																						
Men	20	..	..	..	1	4	1	3	5	2	1	3	..	..	..	..	..	2	5	6	6	1
Women	20	..	..	..	..	1	..	2	7	5	2	1	2	..	1	..	3	2	5	12	1	..
Slav—																						
Men	10	..	..	..	..	1	..	..	2	4	1	2	..	4	..	..	..	..	3	6	1	..
Women	30	..	..	..	..	1	2	4	7	4	7	5	..	6	3	..	..	3	11	9	7	..

In the narrative the literate groups made a slightly better showing than the illiterates. Thirteen literate immigrants enumerated more than 10 details, while only 1 illiterate immigrant recalled more than 10 details. A number of immigrants injected imaginary objects into their narratives.

The best scores were made by 1 boy of the *literate 12–14* group, who scored 14 details, and by a woman of the *literate 15 and above* group, who scored 13 details. Two boys of the *literate 12–14* group and 2 men of the *literate 15 and above* group each scored 12 details.

The most striking fact learned from the interrogatory was that the majority of immigrants made mistakes in answering some of the 5 questions. Among the literates only 28 answered all 5 questions correctly and among the illiterates only 7.

DISCUSSION.

Memory tests are legion, but they differ from one another in various respects. This test, in the main, may be classed as a test of recent memory. In instructing the subject in regard to this test and exposing the picture to him we see how his mind functionates in certain directions. Before the new picture is shown, the normal subject, of course, has his own store of images and fixed associations which will be of some assistance to him in performing the test.

Such combinations as rooster-hens, house-church, trees-grass-flowers, and similar series, are associations common to all. In order to succeed in this, as well as in other memory tests, the subject first of all must attend. While attending, he must make a number of distinct perceptions of the details of the picture before him. He then sees the connection between one percept and another. He forms certain associations between the various objects depicted. Perhaps he holds in consciousness the auditory-word-images which are symbols of the details. He may even articulate such words to himself. During the mental process he is said to be fixing or retaining the details. The process may not go on in the exact order here described, or the various phases may take place almost simultaneously, or the act of attending may itself be accompanied by all of these phases combined; but something similar to this process does take place.

Another factor is personal interest, which will cause the subject to select and retain certain details to the exclusion of others.

When the immigrant is asked by the examiner to recall what he has retained, by reverse associative processes the retained images are serially brought into consciousness and expressed to the examiner in the form of suitable words.

Perhaps the most striking results of this test at the first examination among arriving immigrants were the very poor showing which was made and the fact that some of the brightest among them scored the smallest number of points.[1] When the Report Test, however, was applied for a second time to several immigrants, each one enumerated more details than he had at the first trial. The present investigation thus indicates that this test can be made serviceable in diagnostic work by repeating it, with the same or different pictures. After the subject has enumerated 6 or 8 details at the first trial he could be told that there are many others which could have been mentioned. A second trial would then throw some light on his learning power, and for this purpose the test could even be given a third time. Care must be exercised in selecting for the second trial, or even for the test proper, pictures the details of which are familiar to immigrants.

VISUAL APPREHENSION.

This test consisted in exposing a board containing 10 objects to the immigrant's view for a brief period and immediately recording the objects which he had seen.

The immigrant was first prepared for the test by exposing to his view for a brief period a box containing a number of trinkets and

[1] It is thought that the mentally deficient immigrant would do almost as well as the normal on this particular test at the first trial.

FIG. 2.—View of board used in Visual Apprehension Test, with objects fastened to it.

having him recall them. After this performance the interpreter said:

I will now expose for a period of four seconds a board containing a number of objects, and I want to see how many of them you can recall, so look well.

A board containing 10 objects (fig. 2) was then exposed for 4 seconds, immediately after which the subject enumerated the objects he had perceived.

The following table gives the results:

TABLE 8.—*Results of Visual Apprehension Test.*

Group.	Number examined.	Number of aliens recalling different objects in test.									Number of aliens recalling imaginary objects.			
		9 objects.	8 objects.	7 objects.	6 objects.	5 objects.	4 objects.	3 objects.	2 objects.	1 object.	0 object.	1 object.	2 objects.	3 objects.	5 objects.
Literate:															
9–11	12	....	2	1	1	1	2	2	....	2	1	2	.....	.....	.....
Hebrew 9–11	25	....	....	....	5	6	7	5	1	1	....	5	2	1	.....
12–14—															
Boys	18	....	....	....	3	4	8	1	1	1	....	6	2	.....	.....
Girls	19	....	....	1	4	5	4	4	1	....	....	6	.....	1	.....
15-above—															
Men	51	1	1	4	9	9	14	8	2	3	....	9	3	2	.....
Women	49	....	2	4	6	14	10	10	3	....	....	13	3	.....	1
Illiterate:															
10–11	4	....	....	....	....	....	2	1	1	....	....	.....	.....	.....	.....
12–14	8	....	....	1	1	1	4	....	....	1	....	2	1	.....	.....
15-above—															
Men	21	....	....	2	6	4	4	1	1	3	....	3	.....	1	.....
Women	8	....	....	1	1	1	....	3	1	....	1	1	.....	.....	.....
Italian—															
Men	20	....	....	3	4	5	5	....	2	....	....	4	1	.....	.....
Women	20	1	....	....	5	4	1	7	2	....	....	3	3	1	.....
Slav—															
Men	10	....	1	1	....	2	4	1	1	....	....	3	1	.....	.....
Women	30	....	....	1	4	11	7	4	2	1	....	7	1	.....	.....

The only statement that will be made in regard to the test is that many intelligent immigrants, as shown by their excellent correlations in other tests, enumerated only 2 or 3 objects, while many less intelligent ones enumerated 5 or 6 objects.

REPEATING DIGITS.

The immigrants were tested as to the number of digits they could repeat in the exact order in which given.

The following numbers were used in this experiment: 382, 497; 3184, 1768; 79381, 27493; 851634, 147839; 9218743, 1396485; 21763859.

METHOD OF TESTING.

The immigrant was first tested with numbers of three digits. As soon as he succeeded in repeating a given series of digits he was tested with the next higher series, different digits or a different order being used at each trial. Four trials were allowed to repeat any given number of digits.

At the first trial the interpreter would pronounce each digit slowly, allowing the same period of time to intervene between the pronunciation of each digit. This might be represented as follows:

7 9 3 8 1

In the event of failure, the interpreter would give the same number but in a reverse order, pronouncing it rapidly in two parts (second trial), thus:

18 397

The interpreter would give the third trial by separating the test number into another two-part arrangement and by pronouncing it rapidly, thus:

274 93

In the event of failure, the interpreter would give the last trial by articulating the number in three distinct parts, thus:

39 47 2

RESULTS.

Every effort was made to see if the subject could repeat at least five digits. Those who repeated five or more and those who repeated less than five are shown in the following table of results, with the percentage of those who succeeded:

TABLE 9.—*Results of Repeating Digits Test.*

Group.	Number examined.	Number of aliens repeating different numbers or series of digits.						Percentage who repeated 5 digits or more.
		5 or more digits.				4 or less digits.		
		8 digits.	7 digits.	6 digits.	5 digits.	4 digits.	3 digits.	
Literate:								
9–11	12	1	5	1	4	1	.....	91⅔
Hebrew 9–11	25	6	7	8	3	1	.....	96
12–14	[1] 36	3	13	11	8	1	.....	97+
15-above—								
Men	50	4	13	18	9	5	1	88
Women	[1] 47	9	10	16	10	2	.....	95½+
Illiterate:								
10–11	4	.....	.....	1	2	1	.....	75
12–14	8	.....	2	4	1	1	.....	87½
15-above—								
Men	21	1	3	4	11	2	.....	90½
Women	8	.....	.....	3	3	2	.....	75
Italian—								
Men	20	.....	.....	6	9	5	.....	75
Women	[1] 19	.....	2	4	4	8	1	52½+
Slav—								
Men	10	1	.....	3	4	2	.....	80
Women	30	1	4	5	13	7	.....	76⅔

[1] Number recorded is given.

SUMMARY OF RESULTS.

Seventy-five per cent of all the groups were able to repeat at least 5 digits.

The women of the *Italian illiterate* group constituted the only subgroup which fell below the 75 per cent mark.

The ability to repeat digits was more marked amohg the literates than among the illiterates.

Among the illiterates the men slightly excelled the women in their ability to repeat at least 5 digits.

Above the age of 9, there is practically no age difference in the ability to perform this test in arriving immigrants.

DISCUSSION.

This test is classified as one of rote memory. Familiarity with digits is certainly a necessary requisite in order to perform it well. A subject who has never been to school and who seldom uses figures is handicapped in its performance. It has been the experience of those examining arriving immigrants to see subjects who could not repeat 5 digits, but who could repeat the names of 5 objects in the exact order in which they were pronounced by the examiner.

Practice in this as well as in other tests at times enables an immigrant to improve his score. Those who could only repeat 4 digits upon arrival have been found to repeat 5 or 6 digits at a second or third examination.

In many foreign languages each digit is composed of two or more syllables. Consequently we would expect a comparatively poor showing in this test among non-English speaking aliens. There are 2, 3, and 4 syllables in the Lithuanian digits and we find a correspondingly poor showing among them in the test. It has been observed that English-speaking immigrants, as a rule, can repeat 7 digits.

STORY.

The Story Test consisted in the immigrant telling a story after it had twice been read to him. The Lincoln pig story,[1] with "the king" substituted for Mr. Lincoln, was used in this experiment in order to test the immigrant's logical memory or his memory for sequence and related ideas. It was also thought that other interesting facts in connection with immigrant psychology would be brought out by such a test.

The story was as follows:

One day the king was out riding. As he passed along the road, he saw a pig sinking into a mudhole. Poor piggy would climb part way up the slippery bank, then down he would fall again. "I suppose I should get down and help that pig," thought the king, "but I have on my new suit, and it will be quite spoiled if I do so. I think I will let him get out the best way he can." He rode on. When nearly 2 miles away, he turned and came back. Not minding the new clothes, he stooped, and taking piggy in his arms, he dragged him out of the mud. The new suit was quite spoiled, but the king said he had taken a pain out of his mind.

[1] Given in Clyde and Wallace: Through the Year, book 2. This story was used in preference to other stories because the average peasant is acquainted with the different details that make up the story.

METHOD OF TESTING.

The interpreter informed the subject that he was to listen attentively so that he could recall as much of the story as possible. The interpreter then read the story slowly twice in succession. At the conclusion of the second reading, the immigrant recited the story in his own language. The interpreter immediately translated it, idea by idea, and the examiner quickly wrote the reproduction on the immigrant's examination chart.

For the purpose of grading, the story was divided into the following ideas, each of which was valued at one point:

1. King out riding—horseback.
2. Pig in mudhole—mud—hole—water hole.
3. Climb up and fall back—trying to get out—save himself.
4. Like to help pig—save pig.
5. New suit.
6. Will be spoiled—it will be dirtied—does not like to dirty clothes.
7. Let him get out best way he can—let him save himself—leave him alone.
8. He rode on—continued his journey—kept on his way.
9. Two miles.
10. Returned.
11. Not minding clothes.
12. Pig in arms.
13. Dragged him out—rescued him—saved it.
14. Suit spoiled—covered with mud—all dirtied.
15. King said.
16. Took pain out of mind—feel easier in mind—weight from my mind—took a thought out of my mind—took a weight out of my head—weight off my shoulders.

In addition to one point for each of these 16 ideas, 4 points were allowed whenever the essential theme—"dragged the pig out of the mud and took a pain out of his mind"—was expressed. Whenever the subject mentioned an idea that was not expressed but was implied in the original story, it was not counted against him; but if two such implications occurred, one point was subtracted from his total score. One point was subtracted for each false idea. Minus quantities were not used (1 – 3 being scored as 0). A perfect story would therefore be represented by the equation:

$$16 + 4 - 0 = 20.$$

These rules were followed as closely as possible, and even then it is conceded that some stories were hard to grade accurately. It is believed, however, that on the whole the total score in each case is a fair representation of what was accomplished.

SPECIMENS OF IMMIGRANTS' REPRODUCTIONS.

Specimen reproductions are given below, each one being chosen to bring out different points of psychological interest. A perpendicular line follows each correct idea; a colon follows each idea that is false

or imaginary; and a colon with the figure one-half (:½) follows the expression of an idea which was merely implied in the original story. The stories are given in the exact words of the interpreter, who was advised to give as literal a translation as possible.

The king once went horseback riding | in the road he saw a pig in a mud hole | at first he thought of helping the pig | and looked at his good clothes | and went on | he rode on for 2 miles | and returned | didn't look at his new clothes | but took the pig in his arms | pulled it out | although he soiled his clothes | he felt easier in his mind | . (Russian No. 10. *Score*, 12+4−0=16.)

The king was riding | the pig was in the mud hole | he wanted to save it | but he did not want to soil his clothes | he rode on for 2 miles | and returned | he didn't look at his clothes | dragged the pig out | soiled his clothes | when he rode farther on (:½) he felt easier in his mind | . (Ruthenian No. 21. *Score*, 10+4−0=14.)

The pig that was in the mud hole—and the man who was there with the pig and the chickens (:). (Spanish No. 13. *Score*, 1+0−1=0.)

The king was going for a ride | and he saw a pig, the pig slid and fell into the hole | the king said "I ought to get him out" | but my clothes are new | then the king got him out of the hole | and spoilt his clothes | that's all. (Syrian Arabian No. 1. *Score*, 6+0−0=6.)

I don't understand. You are reading something about a Christian and animal on the earth. (Spanish No. 18. *Score*, 0+0−0=0.)

The king who had been out riding | loaned himself in going to save that poor pig | that was floundering in the mud | the pig showed its thankfulness to the king for having saved his life (:) the king said "it is all right (:) it is the grace of God I have come to get you out (:)." (Spanish No. 7. *Score*, 3+0−3=0.)

There was once a king and there was a pig and he scratched up his legs (:) and he was wallowing in the mud | after that he jumped in the mud (:) after 2 miles | he returned | he caught him up and threw him in the mud (:) then his clothes were completely covered with mud | . (Italian No. 77. *Score*, 4+0−3=1.)

One day a king was out riding on horseback | he saw a pig in a mud hole | he said he would try to take him out but | that he had a good suit of clothes | he said he rode up the road 2 miles | he turned back again | on his way back he saw the pig trying to get out of the mud hole (:½) he came down off his horse (:½) took the pig out of the mud hole | dirtied his new suit of clothes | he had a pain(:) that is all I know. (Irish No. 1. *Score*, 10+0−2=8.)

Pig fell down the hole when he tried to get up again. (Norway No. 4. *Score*, 1+0−0=1.)

One day there was a gentleman, a king on horseback | he saw a pig while passing on the roadside who was in a well filled with mud | he wanted to save the pig | but he had on his Sunday clothes | and he did not want to dirty them | he then went off | 2 miles | and returned | in order to save the pig he took him out | and he dirtied his suit | and he took it with him (:). (Italian No. 68. *Score*, 10+0−1=9.)

A man was riding horseback | while through the woods he met a pig, he went after that 2 miles distant | he returned and pulled the pig out | with his hands | saying that it weighed very much (:) he ruined his suit | I don't remember any more, I would understand it better if it were in Greek. (Spoke in French.) (Greek No. 1. *Score*, 5+0−1=4.)

This man was afraid that the poor animal would die in that place (:) quickness he thought of his new suit and the pig he would not mind to save. He saved the pig's life | but I do not know whether he did this for his own sake or on account of the value of the pig. If he would keep it. It might have been that he saved the pig for its own sake or also for the sake of him who pulled him out. (Spaniard No. 1. *Score*, 1+0−1=0.)

The king was doing it (:) He was digging a piece of beans. (Italian No. 38. *Score*, 0+0−2=0.

The king, dirtying clothes | 100 meters (:) he came back. (Note: Much straining and difficulty in finding suitable words with which to express himself.) (Italian No. 34. *Score*, 1+0−1=0.)

The king came on horseback | saw the pig in the mud that was drowning | he then got down pulled the pig out | in his arms | and saved the pig's life like a good Christian (:) (Italian No. 33. *Score*, 4+0−1=3.)

One day the king was passing in the road, he met a pig in mudhole | trying to get out with his feet | pig wants help (:½) king answers (:) how can I help you? (:) I have new suit | the king went away | pig continued to demand help (:) the king after going a distance of 2 miles | he says I don't care if I have a new suit I am going to help that poor pig (:½) the king's new suit was covered with mud | that's all. (Italian No. 19. *Score*, 6+0−3=3.)

RESULTS.

The results of this test were as follows:

TABLE 10.—*Results of Story Test.*

Group.	Number examined.	Number scoring 15 points or more.					Number scoring from 10 to 14 points.					Number scoring less than 10 points.									
		19 points.	18 points.	17 points.	16 points.	15 points.	14 points.	13 points.	12 points.	11 points.	10 points.	9 points.	8 points.	7 points.	6 points.	5 points.	4 points.	3 points.	2 points.	1 point.	0 points.
Literate:																					
9–11	12			1	1	2	1	1			1			2		1		1			1
Hebrew 9–11	25		3	3	6	5	1	3	1	1	1	1									
12–14	37	1	1	3	4	6	2	1			1	2		1	2	2		1	4	1	5
15-above	[1]97	1	4	6	14	7	10	10	5	3	3	2	2	4	5	2	2	6	3	4	4
Illiterate:																					
10–11	4								1		2						1				
12–14	8				2		1			1		2								1	1
15-above	[1]26				1	1	3		1		1	1	5	1	3	1	1	3	2		2
Italian—																					
Men	20			1		1	1	1				1	1	1	1	2	1	4		3	2
Women	[1]19				1						1		1	2		2	1		1	3	7
Slav—																					
Men	10				2	2	2	1			1	2									
Women	30				3	4	8	1	3	1	1	4	1		1			1			2

[1] Number recorded.

SUMMARY OF RESULTS.

The literate groups excelled the illiterate in this test. The children of the *Hebrew literate 9–11* group made the best record. Seventeen out of 25 of them scored 15 points or more; 7 scored between 10 and 14 points; and only 1, who made 9 points, fell into the lowest section. It will be noted that 10 literate immigrants considered normal scored nothing.

Among the illiterates, 8 men and 21 women of the *Slav illiterate* group scored 10 points or more, while only 4 men and 2 women of the *Italian illiterate* group made 10 points or more. A number of the low records in the *illiterate 15 and above* group were made by Spanlards and Italians. Fourteen illiterates, 7 of whom were Italian women, scored 0 points.

Above the age of 9, the ability to render this story appears to be uninfluenced by age.

DISCUSSION.

This is undoubtedly a severe test and requires a higher degree of sustained attention than many other tests. In order to make a fair showing with it, the subject must be in a cooperating mood and not emotionally disturbed. Furthermore, among other requisites there must be fertility and control of language. It must be remembered also that one who has read stories, who has heard stories told, or who has lived in a "story atmosphere" is better able to cope with a test of this kind than one who has not had such advantages. Briefly, it may be said that the poor records obtained in this test were due to lack of experience, unfamiliarity with stories, and defects in the emotional field. Many of the narratives, especially by the members of the illiterate groups, showed a good deal of emotional coloring and contained erroneous ideas. In some cases of complete failure the alien temporarily assumed the "give up" attitude, which is best understood by such phrases as "What's the use?" "Too much for me," "I am tired of playing." In other words, in these particular cases there existed a feeling of discouragement which resulted in a complete lack of cooperation.

Many immigrants who made a low score on this test made excellent records on other tests and they impressed the examiner as being normal or average immigrants. Thus, while the rendering of a good story on the part of an immigrant is indicative of a good mental mechanism, the rendering of a poor story does not necessarily denote mental enfeeblement.

CUBE TEST.

The Cube Test, devised by Knox, of the Public Health Service, consists in the examiner touching four or five different cubes one after another in a definite order, immediately after which the subject strives to touch the same cubes in the same order.

METHOD OF TESTING.

In touching the cubes a spool was used instead of a block, so as to draw the subject's attention from the exact way in which the cubes were struck and to the essential feature of the problem, the order in which the different cubes were touched by the examiner. A board containing openings for five cubes was used in this experiment.

In figure 3 four cubes are represented. In the movement here depicted the examiner touches the cubes in the following order, 14 23, the space representing a pause of one and one-half to two seconds. As the test was carried out, immediately the subject succeeded with one movement, the examiner gave him another one,

touching the blocks in a different order. The following movements were used in the Four-Cube Test, the space indicating an interval of from one and one-half to two seconds:

First: 14 23	Third: 13 24	Fifth: 32 41
Second: 13 42	Fourth: 42 31	Sixth: 24 13

The execution of these six movements by examiner and subject ordinarily required from 40 to 60 seconds.

The following four movements were used in the Five-Cube Test:

First: 145 23	Third: 513 42
Second: 24 135	Fourth: 435 21

The only case in which two trials were allowed was in the first movement of the Four-Cube Test. This was done because many

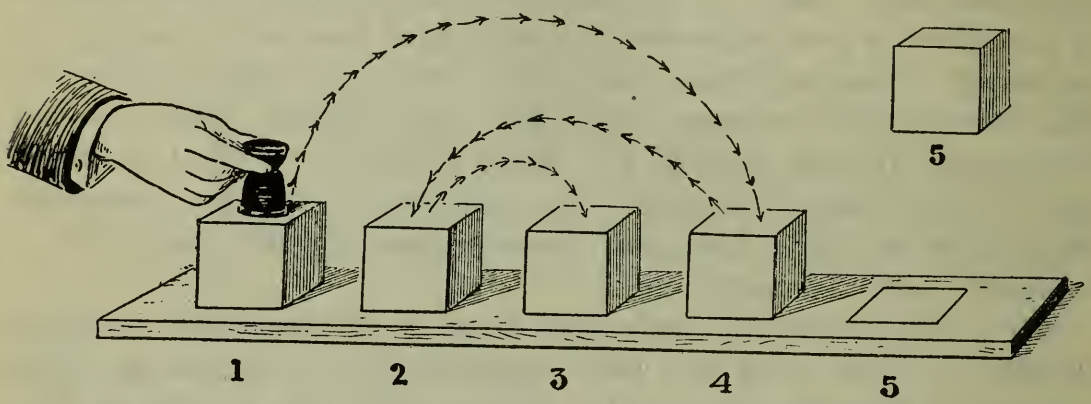

FIG. 3.—A movement of the Four-Cube Test, showing also how board may be used for Five-Cube Test.

immigrants did not at first understand what was wanted of them. In touching the blocks the examiner always moved slowly; furthermore, time to recover mentally from each movement was allowed the subject, especially if he were laboring under some kind of stress and performing the test with tremor and uncertainty. In spite of the fact that the test was performed early in the examination of each immigrant, after 10 to 20 minutes had been spent on other tests, several subjects were emotionally disturbed. In these cases this particular test was deferred to the end of the examination.

When a wrong movement was made but immediately rectified, it was recorded as a success.

RESULTS.

The results of these Cube Tests are given below:

TABLE 11.—*Results of Cube Tests.*

Group.	Number examined.	Four cube.										Five cube.							
		Number performing 4 movements or more.				Percentage.	Number performing less than 4 movements.				Percentage.	Number performing 1 or more movements.					Percentage.	Number performing no movements.	Percentage.
		6 movements.	5 movements.	4 movements.	Total.		3 movements.	2 movements.	1 movement.	Total.		4 movements.	3 movements.	2 movements.	1 movement.	Total.			
Literate:																			
9–11	12	5	2	2	9	75	2	1	...	3	25	3	2	4	3	12	100	.....	.....
Hebrew, 9–11	25	11	6	4	21	84	2	2	...	4	16	2	5	8	8	23	92	2	8
12–14—																			
Boys	18	7	10	1	18	100	...	...	...	...	.....	4	8	1	2	15	83⅓	3	16⅔
Girls	19	4	8	2	14	73½+	2	2	1	5	26+	4	3	3	3	13	68+	6	31½+
15-above—																			
Men	51	20	20	5	45	88+	2	2	2	6	11½+	8	11	14	9	42	82+	9	17½+
Women	49	17	19	8	44	89½+	3	2	...	5	10+	5	11	14	14	44	89½+	5	10+
Illiterate:																			
10–11	4	2	2	...	4	100	...	...	...	...	.....	...	1	1	2	4	100	.....	.....
12–14	8	1	2	4	7	87½	1	...	...	1	12½	1	...	1	4	6	75	2	25
15-above—																			
Men	21	5	4	8	17	81−	4	...	...	4	19+	4	2	6	6	18	85½+	3	14+
Women	8	1	4	1	6	75	1	1	...	2	25	1	1	1	4	7	87½	1	12½
Italian—																			
Men	20	7	10	2	19	95	1	...	...	1	5	3	6	4	6	19	95	1	5
Women	20	2	7	8	17	85	2	1	...	3	15	1	4	4	4	13	65	7	35
Slav—																			
Men	10	5	2	1	8	80	2	...	...	2	10	...	...	2	6	8	80	2	10
Women	30	8	10	5	23	76⅔	4	2	1	7	23⅓	2	4	6	10	22	73⅓	8	26⅔

SUMMARY OF RESULTS.

In the Four-Cube Test, 75 per cent of all literate immigrants succeeded in correctly executing 4 out of the 6 movements. The girls of the *literate 12–14* group fell a little below the 75 per cent mark, while the boys of the same group made the best record (100 per cent). This is the only group among the literates which shows a difference in performance as regards sex. Many of the young children, especially in the *Hebrew literate* group, excelled the older immigrants in this test.

In the Four-Cube Test the 4 children of the *illiterate 10–11* group succeeded in doing 4 movements or better. In fact they did as well as any other immigrants, regardless of schooling. Seventy-five per cent of all the immigrants of the illiterate groups succeeded in performing at least 4 movements. The men seem to execute the test correctly more often than the women. The Italians, both men and women, excel the Slavs.

In the Five-Cube Test, 75 per cent of all the literate groups combined succeeded in accomplishing at least 1 out of 4 movements. The only subgroup falling below the 75 per cent mark was that of the girls of the *literate 12–14* group.

In the Five-Cube Test, 75 per cent of all the illiterates succeeded in scoring 1 out of 4 movements. The Slav women did not quite succeed in making the satisfactory mark of 75 per cent. The percentage of success among the women of the *Italian illiterate* group fell to 65.

Although the difference exhibited in the various groups are interesting from a psychological standpoint, yet they are of little importance when a diagnosis of mental deficiency is under consideration.

CONCLUSIONS.

From the above table and summary of results it may be concluded that—

1. When the test is conducted 24 hours after arrival, in a quiet room, and after several minutes of preliminary questioning, a normal arriving immigrant above the age of 9 may be expected to execute 4 out of 6 movements with the Four-Cube Test.
2. This test is uninfluenced by formal schooling.
3. Above 9 years of age, for practical purposes, there is little or no difference in the performance of this test as regards age, sex, and nationality.
4. On the whole, 75 per cent of all immigrants succeed in scoring at least 1 movement out of 4 with the Five-Cube Test, although a few individual groups are unable to qualify in this test.

DISCUSSION.

The Cube Test is perhaps the most useful performance test yet devised in the mental examination of arriving immigrants. As the test can be quickly executed, it is especially valuable at the secondary inspection or weeding-out process, where the medical officer inspects a large crowd of immigrants for the purpose of selecting those suspected of having mental defects. It is also of value in subsequent examinations, where it becomes, in addition to its other functions, a test in learning. In the Four-Cube Test the subject's mentation is put on parade, so to speak. During the performance the subject is carefully observed. His general get-up, facial expression, amount of self-reliance, power of comprehension, manner of performing test, muscular control, rapidity of movement, attention over a period of 45 seconds, emotional state, as well as accuracy of performance are all taken in. The fourth movement brings out his ability to resist suggestion.

In these tests most of the immigrants who succeeded in only two or three movements with the Four-Cube Test were tried again at the

conclusion of the entire examination. This secondary testing almost invariably resulted in an improvement over the first examination. A normal person acquires the knack of performing the experiment. The knack for one person may be simply to remember which cube is struck first; for another person it may be to remember which two cubes are struck first. Hence, from day to day, in repeated mental examinations with the Cube Test, an improvement in the performance of the test should occur at each examination. In cases where only one or two movements were scored in the Four-Cube Test, and where the general examination of the subject was up to the average, the examiner could predict with almost certainty that the subject would make a perfect score in this test if given another opportunity.

Transient causes sometimes temporarily prevent the performance of the test by persons of real ability. Wandering of the attention from one cause or another is frequently productive of failure. A bright Italian boy did only three movements with the Four-Cube Test and then made a perfect score on the Five-Cube Test. A number of similar cases have occurred during the experiment. In other cases, failure at the start may indicate that the subject does not comprehend what is wanted of him; failure toward the end would be suggestive of lack of attention or fatigue.

This test naturally requires a fair degree of vision.

Many adult immigrants who have had considerable schooling do the test poorly, while many young illiterates perform it well. In fact, two immigrants who had been to school for seven and nine years, respectively, did the Cube Test poorly. The play and toy idea which the Cube Test arouses may be productive of the keen interest which is often met with in young subjects.

A number of subjects can handle four cubes perfectly but make a complete failure with five cubes. A five-cube movement is never performed accidentally, whereas the four cube occasionally is.

To execute the Five-Cube Test successfully a subject must move in accordance with his first inclination. In this test the examiner should mentally give the subject a certain amount of credit if he shows that he has the correct idea of combinations, even though the performance must be scored a failure, as when the movement 42 135 is substituted for the correct movement 24 135.

In their anxiety to excel in the test some subjects strive to imitate the examiner and hold the spool just as he did. In this case the essential feature of the test is missed and mistakes are made. Other immigrants assume a suggestible attitude; i. e., after touching a cube they look at the examiner to see if they can obtain a sign from him indicative of their good performance. This attitude may also result in failure.

In examining an immigrant with the cubes and other tests the examiner should always put these questions to himself: Is the subject interested in the test? Is he cooperating? Is he emotionally quiet? Is the environment in which this test is performed suitable? Not only is an immigration station different from a school, store, recruiting office, or jail, but the different parts of the station are different one from the other.

COUNTING DOTS.

Between trial 1 and trial 2 of the Geographic Test (see p. 83) the immigrant counted the dots on a card. The card contained 53 dots which were arranged in irregular groups occupying 4 rows. (Fig. 4.)

METHOD OF TESTING.

The dot-counting card was placed on the table in front of the subject and the interpreter, pointing to the dots of the first two rows, said:

Count all the dots on this card; thus 1, 2, 3, 4, 5, and so on.

The number of dots which the immigrant obtained together with the time required for the counting was recorded on his examination chart.

RESULTS.

The results of this test are given below:

TABLE 12.—*Results of Counting Dots Test.*

Group.	Number examined.	Successes.				Failures.								
		Number giving correct result (53 dots).	Percentage of successes.	Average time.	Time ranged between—	Number of dots immigrant obtained and time he required. (Superior numerals indicate the number of immigrants in each group getting the same results, the number of seconds given being an average of the time required by each.)								
						43 dots.	46 dots.	47 dots.	51 dots.	52 dots.	54 dots.	55 dots.	61 dots.	63 dots.
Literate:				*Secs*	*Secs.*	*Secs.*	*Secs.*	*Secs.*	*Secs.*	*Secs.*	*Secs.*	*Secs.*	*Secs.*	*Secs.*
9–11	12	11	91⅔	34	25–48	.....	.....	.....	.....	35	.....	.....	.....	.....
Hebrew, 9–11	25	21	84	34	25–48	.....	.....	.....	45	34^{2}	48	.....	.....	.....
12–14	37	28	75½	34	22–52	.....	.....	25	28	32^{2}	40^{2}	20	35	50
15-above—														
Men	51	41	80	30	18–49	47	37	.....	40	34	36^{6}	.....	.....	.....
Women	48	38	79	33	20–46	.....	.....	.....	37	31^{7}	35	27	.....	.....
Illiterate:														
10–11	2	2	100	44	42–46	.....	.....	.....	.....	.....	.....	.....	.....	.....
12–14	8	6	75	38	28–41	.....	.....	.....	.....	46^{2}	.....	.....	.....	.....
15-above	27	22	81½	34	23–43	.....	.....	.....	.....	43	40^{3}	45	.....	.....
Italian—														
Men	20	18	90	31	21–49	.....	.....	.....	.....	27^{2}	.....	.....	.....	.....
Women	20	[1]17	85	35	22–45	.....	.....	.....	.....	45	52	.....	.....	.....
Slav—														
Men	10	10	100	37	28–55	.....	.....	.....	.....	.....	.....	.....	.....	.....
Women	29	21	72½	48	26–70	.....	.....	.....	.....	58^{2}	45^{1}	$43\frac{1}{2}^{2}$	.....	.....

[1] One immigrant in this group would not count the dots.

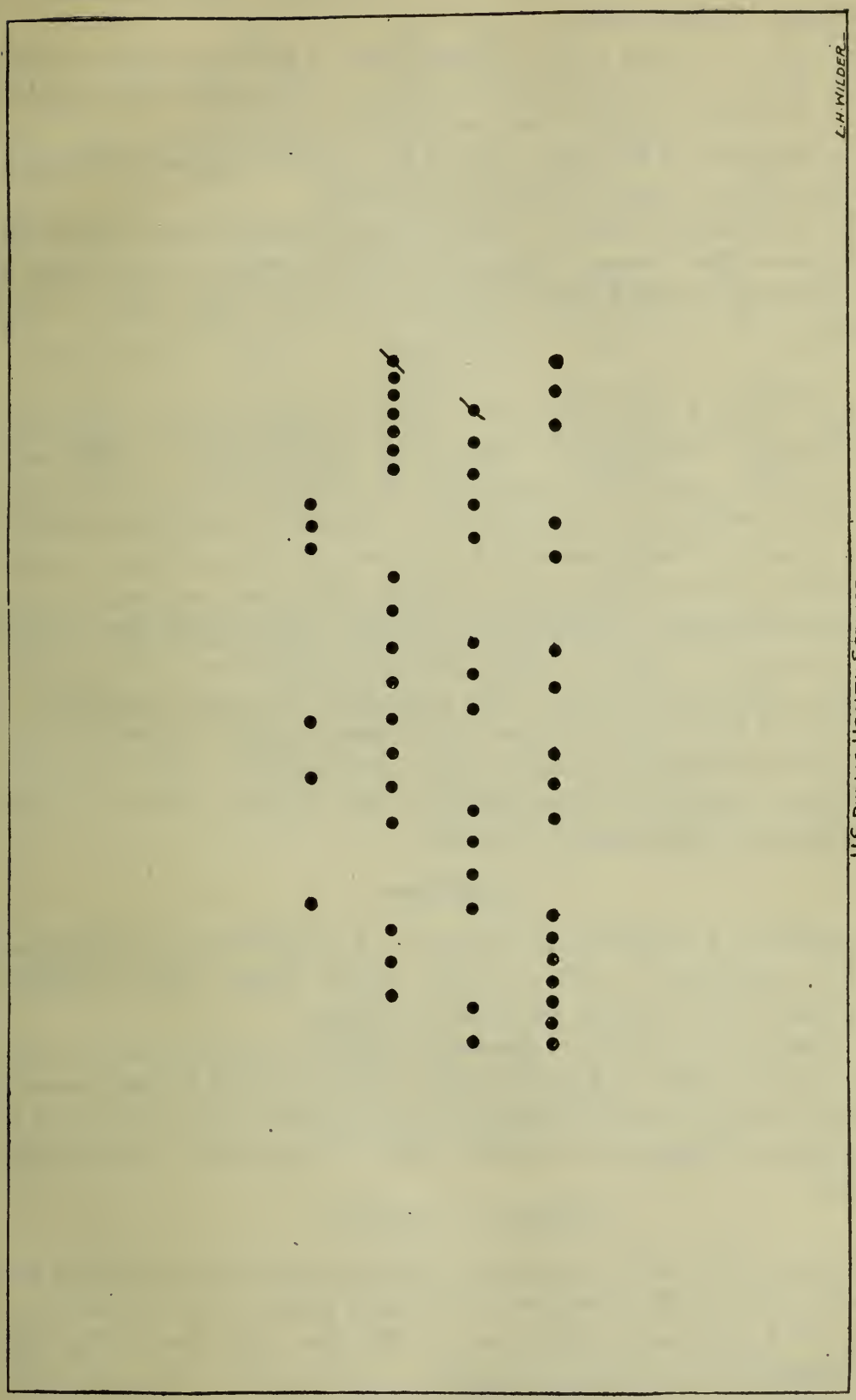

FIG. 4.—Card used in Dot-Counting Test.

SUMMARY OF RESULTS.

Seventy-five per cent of all the immigrants tested succeeded in making an accurate count.

The only subgroup which fell below the 75 per cent mark was that of the women of the *Slav illiterate* group. Seventy-two and one-half per cent of their number made an accurate account.

The accuracy of the count, above the age of 9, appears to be independent of race, age, and formal schooling.

The performance time of the literates is faster than that of the illiterates. The average time in the literate groups varied from 30 to 34 seconds, while in the illiterate groups it varied from 31 to 48 seconds.

DISCUSSION.

This test, in a broad sense, is a memory test. It shows the speed and accuracy with which a subject can apply a fixed number association to the task of dot counting. The subject who is accustomed to counting will count these dots easily, it may be said almost reflexly, but it is a more laborious task for one who has done little counting. A number of immigrants who evidently did little counting at home had much difficulty in counting beyond 29. They would say "twenty ten" instead of "thirty." They had to be assisted over the thirtieth, fortieth, and fiftieth dots. This assistance was given especially in the case of the women of the *Slav illiterate* group. Several immigrants who counted 53 dots made two mistakes while counting, inserting an extra dot in one instance and skipping one in another, one mistake counteracting the other.

LEARNING.

Learning is a complex test similar to a recognition test suggested for the experiment by Prof. Henry Alford Ruger, and is applied according to the learning principle in testing.

It consisted in exposing 3 geometrical figures on the back of a card to the subject's view and getting him to find the same 3 figures among 20 figures on the face of the card. (Figs. 5 and 6.) He was scored on the number of exposures or trials that were necessary to accomplish the task.

METHOD OF TESTING.

The face of the card containing 20 different geometrical figures was placed in front of the immigrant for a brief glance (2 or 3 seconds).

The card was then turned over, so that he could observe the side containing the 3 geometrical figures. At the same time the interpreter said:

Look at these 3 figures well; fix them in your mind. I want you to find them on the other side of the card.

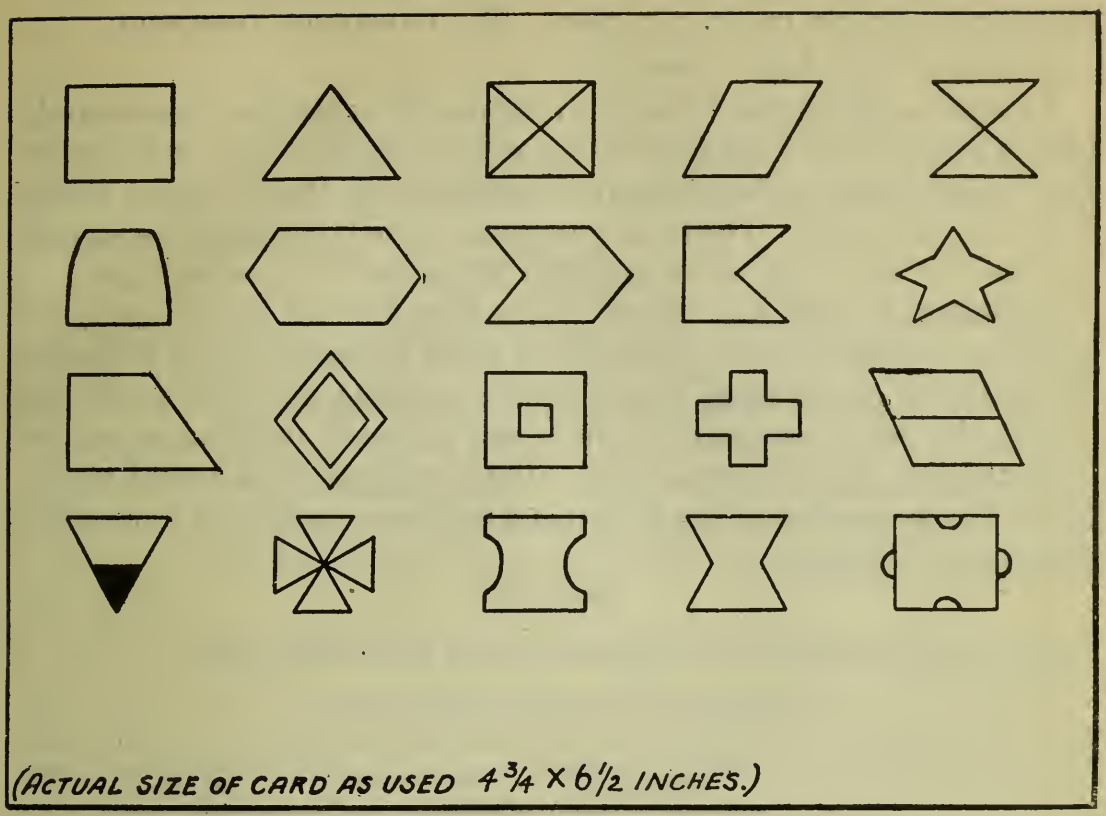

FIG. 5.—Face of card used in Learning Test.

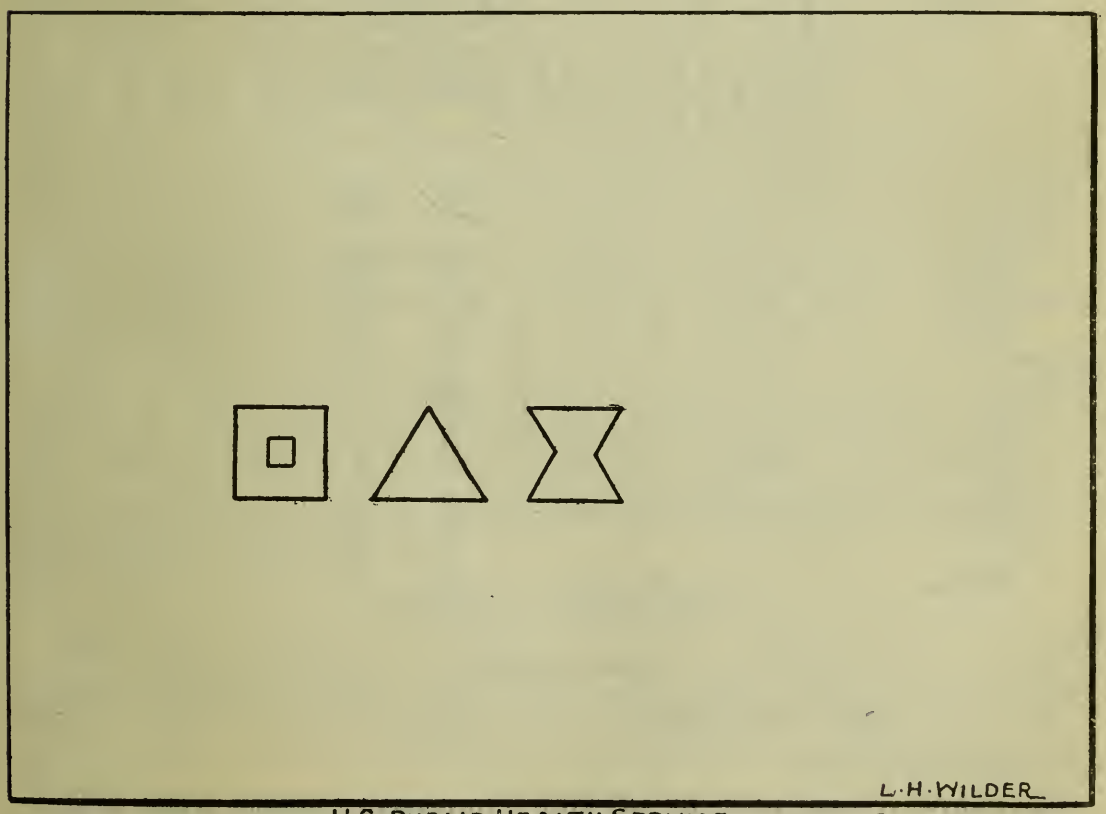

FIG. 6.—Back of card used in Learning Test.

After 10 to 15 seconds the card was turned over, so that the 20 geometrical figures came into view. The interpreter then said:

Look well; find the 3 figures among them.

As soon as the subject made a mistake, the card was immediately turned over, so as to obtain another view of the 3 geometrical figures. This second and each subsequent exposure to the 3 figures lasted only 5 or 6 seconds. The card was again turned over, and the subject searched for the 3 figures among the 20 figures for a second time.

As before, as soon as a wrong figure was pointed to the card was quickly reversed in order to obtain a third exposure of the 3 figures. This process of exposing the 3 figures, turning over the card, and having the subject search for them was repeated until he succeeded in finding all 3 at the same trial. The immigrant was scored on the number of exposures of the 3 figures which were necessary in order to accomplish the task.

RESULTS.

The results of this test are given in the following table:

TABLE 13.—*Results of Learning Test.*

Group.	Number examined.	Number succeeding in 4 or less trials.				Percentages.		Number succeeding in more than 4 trials.						
		1 trial.	2 trials.	3 trials.	4 trials.	Number succeeding in 3 or less trials.	Number succeeding in 4 or less trials.	5 trials.	6 trials.	7 trials.	8 trials.	10 trials.	12 trials.	15 trials.
Literate:														
9–11	12	5	6	1	.....	100	100	....	....	....	....	....	....	....
Hebrew 9–11	25	8	10	4	2	88	96	....	1	....	....	....	....	....
12–14—														
Boys	18	6	6	3	2	83⅓	94½	....	....	....	1	....	....	....
Girls	19	4	7	6	1	89½	94½	....	1	....	....	....	....	....
15-above—														
Men	50	11	21	13	4	90	98	....	1	....	....	....	....	....
Women	49	16	16	11	2	87½	91½	2	....	1	1	....	....	....
Illiterate:														
10–11	4	1	.....	1	1	50	75	1	....	....	....	....	....	....
12–14	8	.....	4	1	1	62½	75	1	....	1	....	....	....	....
15–above—														
Men	20	4	7	5	1	80	85	1	1	....	1	....	....	....
Women	8	.....	1	5	.....	75	75	2	....	....	....	....	....	....
Italian—														
Men	20	2	6	3	5	55	80	1	....	2	1	....	....	....
Women	20	2	5	3	3	50	65	....	....	....	3	1	1	2
Slav—														
Men	10	3	3	2	1	70	80	1	....	....	....	1	....	....
Women	30	11	10	5	1	86⅔	90	3	....	....	....	....	....	....

CONCLUSIONS.

The important conclusions to be drawn from the data above presented are that:

Seventy-five per cent of all the immigrants tested were able to succeed in the Learning Test with four trials or less. However, only 65 per cent of the women of the *Italian illiterate* group succeeded in performing the test with four trials or less.

The literate groups greatly excelled the illiterates in the performance of this test. Over 83 per cent of each literate group succeeded in doing the test within three trials. Among the illiterates the women of the *Slav illiterate* group made an excellent record.

In the literate groups the young immigrants do the test as well as the older ones. Among illiterates the young immigrants do the test nearly as well.

DISCUSSION.

Auditory memory is especially involved in many of the memory tests of this investigation. The present test differs from others in that it tests the visual-apprehending-retaining apparatus of the subject.

In apprehending the three geometrical forms, the subject must analyze them and differentiate them. They must be retained sufficiently long to be recognized. The ease with which the immigrant retained and recognized these forms was to some extent an index of his learning ability.

As in many other tests, previous experience has much to do with the quick performance of this test. This is proven by the excellent showing which the literates make. They have on previous occasions, in a more or less systematic way, familiarized themselves with these and similar forms. While they may be unaware of the fact, nevertheless they have made such observations at school, at work, and at play. Even the illiterates have observed and retained forms of different kinds, especially those whose occupations have made them familiar with geometrical designs. If forms of various kinds are poorly perceived or if not perceived at all, it is more than likely that there is some defect in the apprehension and perception function of the individual. The examiner had the opportunity of trying this test on several immigrants who had been certified as feeble-minded. These certified immigrants accomplished the test in 6, 8, 10, 12, and more trials.

The examiner believes that the Learning Test is one of the best for use in the mental examination of arriving immigrants. Should this test be used when examinations are repeated, cards containing 20 other simple geometrical designs or the same designs in different arrangement should be used.

OBEYING COMMANDS.

This test consisted in finding how many commissions a subject could execute in definite order after being given definite instructions.

METHOD OF TESTING.

Four series of commands were given to each subject, as follows:

Two commands.—1. Open door. 2. Chair near window.

Three commands.—1. Book on floor. 2. Chair in corner. 3. Pencil on chair.

Four commands.—1. Pencil on table. 2. Close door. 3. Book on table. 4. Block on floor.

Five commands.—1. Block on table. 2. Book on floor. 3. Open door. 4. Chair near window. 5. Pencil in corner.

In every case the interpreter would start with the two-command series. Whether a success or a failure occurred, the alien would be tested with the next higher series. Before giving the command, the interpreter would point to the different details in the room connected with the test, saying, "There is the book, pencil, block, table, floor, door, corner, chair, window." The interpreter would then give each series of commands twice. In the case of the two-command series he would say, "First open the door (pointing to it); then place the chair near the window (pointing to it)." The alien usually executed this series promptly, though sometimes he had to be urged to carry out the command. After executing the commands he would return and take his seat at the end of the table. The objects were arranged in accordance with the demands of the next series before the test was continued.

In the final score, the immigrant was allowed one-half point if he executed the commands of a higher series but failed to carry them out in order.

RESULTS.

A table of results is given to show how many immigrants succeeded in obeying at least four commands:

TABLE 14.—*Results of Obeying Commands Test.*

Group.	Number examined.	Execution of four commands or more.				Execution of less than four commands.				
		Number of aliens.			Per centage.	Number of aliens.				Per centage.
		Five commands.	Four commands.			Three commands.		Two commands.		
		5	[1] 4½	4		[1] 3½	3	[1] 2½	2	
Literate:										
9–11	12	8	1	3	100	.....	.....	.....	.....	.....
Hebrew, 9–11	25	12	6	3	84	3	.....	1	.....	16
12–14:										
Boys	18	8	5	3	89–	.....	1	1	.....	11+
Girls	19	13	1	1	79–	4	.....	.....	.....	21+
15–above—										
Men	51	31	8	3	82+	6	.....	2	1	18–
Women	49	26	12	8	93½+	2	.....	1	.....	6 +
Illiterate:										
10–11	4	4	.....	.....	100	.....	.....	.....	.....	.....
12–14	8	4	1	1	75	.....	.....	1	1	25
15–above—										
Men	21	12	.....	5	81–	.....	4	.....	.....	19+
Women	8	4	2	1	87½	.....	.....	.....	1	12½
Italian—										
Men	20	7	4	5	80	1	1	.....	2	20
Women	20	8	3	1	60	3	1	3	1	40
Slav—										
Men	10	5	3	2	100	.....	.....	.....	.....	.....
Women	30	15	7	3	83⅓	3	1	.....	1	16⅔

[1] One-half shows that the immigrant, in addition to executing correctly the commands indicated in the table, also carried out the commands of the next higher series, but in an improper order.

With the exception of the women of the *Italian illiterate* group, 75 per cent of every group succeeded in obeying at least 4 commands. Those who succeeded in obeying 5 commands were greater in number than those who could only complete the 4 or 3 commands. The *illiterate 10–11* group, from which we would naturally expect the poorest result on account of youth and illiteracy, made a perfect score, each individual scoring 5.

CONCLUSIONS.

From the data above presented it is safe to conclude that:

(1) Arriving immigrants above the age of 9, whether literate or illiterate, are able to obey 4 commands.

(2) If the examination is conducted as described in this experiment it may be expected that 50 per cent of the subjects will make a perfect score in this test.

(3) On the whole there is no marked difference in the performance of this test as regards sex.

DISCUSSION.

A number of subjects succeeded in carrying out 5 commands after having failed in the 3-command or 4-command series. Failure in the earlier series in these particular cases was probably due to a lack of understanding as to just what was wanted, or to lack of familiarity with some of the objects used in this test or perhaps to temporary inattention due to some accidental cause.

In carrying out this test it is important to remember that emphasis should be laid upon the first and last command of each series. This method of applying the test implies that the separate commands must be carried out in a definite order and thus does away with the necessity of "too much explaining."

Several immigrants made one or two mistakes in executing a series. However, they quickly saw their mistake, made the correction, then went through the series from first to last as it should be done. It is needless to say that such a performance was considered a success.

An individual's early training is largely concerned in obeying commands. Therefore, the movements required in obeying the different commands in this test are a familiar procedure. For similar reasons disturbed subjects frequently become more quiet while performing this test.

It is interesting to note that several immigrants were able to obey 5 commands but could not possibly repeat 5 digits.

ARRANGING OBJECTS.

In the Arranging Objects Test the subject was tested in his ability to select certain objects from a field containing 16 heterogeneous pieces and place them on a board in a certain order after having seen

the same operation carried out by the examiner. The board, a part of the Cube Test (see p. 39), contained 5 shallow square openings. It was placed on the examining table parallel with and about 9 inches from the table edge. The field was that portion of the table which was bounded by the edge and board. It was about 20 inches long and 9 inches broad and contained the 16 heterogeneous pieces, each placed in a definite marked position with which the experimenter was familiar. The pieces were odds and ends picked up in a child's playroom. Between some of them there were certain resemblances. For instance, piece 2 was a red block, while piece 12 was a white block of the same size; piece 3 was a wooden pig, while piece 6 was a wooden chicken of the same color; and piece 1 was a large coin, while piece 14 was a small coin. The pieces were arranged in the field as shown in the accompanying illustration (fig. 7).

METHOD OF TESTING.

The subject stood at the edge of the table and faced the board and field. The experimenter, with stop watch in hand, stood at the subject's left. The experimenter said to the subject, "Look well," and at the same time picked up the penny and placed it in the first square opening of the board. He placed the pig in opening 2 of the board and then placed the chicken in opening 3. The board containing the three pieces (penny, pig, chicken) was exposed to the immigrant's view for 10 additional seconds. Then the examiner turned the immigrant completely about, so that the latter could not see the board.

When the immigrant was thus turned about, the examiner returned the 3 pieces to their respective positions in the field. The subject was then turned to again face the board and was instructed to place the same 3 pieces in the 3 openings of the board just as the examiner had done. The immigrant was always [1] able to do this without difficulty.

The examiner went through the same process again, but this time placed 4 different pieces on the board. They were arranged from left to right as follows: *Chain, nut, red block, pin.* When the immigrant failed to make the proper arrangement he was given a second trial with 4 other pieces. After the subject had succeeded with 4 pieces he was tested with 5 pieces. The examiner continued this process, each time increasing the number of pieces until the subject failed in two trials to make a given arrangement. He was then given a score equivalent in points to the number of objects successfully arranged. If, in spite of failure in a second trial, he selected the proper pieces but in a wrong order, or kept to the right order though selecting 1 wrong piece, one-half point was added to his score.

[1] One woman of the Italian illiterate group failed to arrange 3 objects.

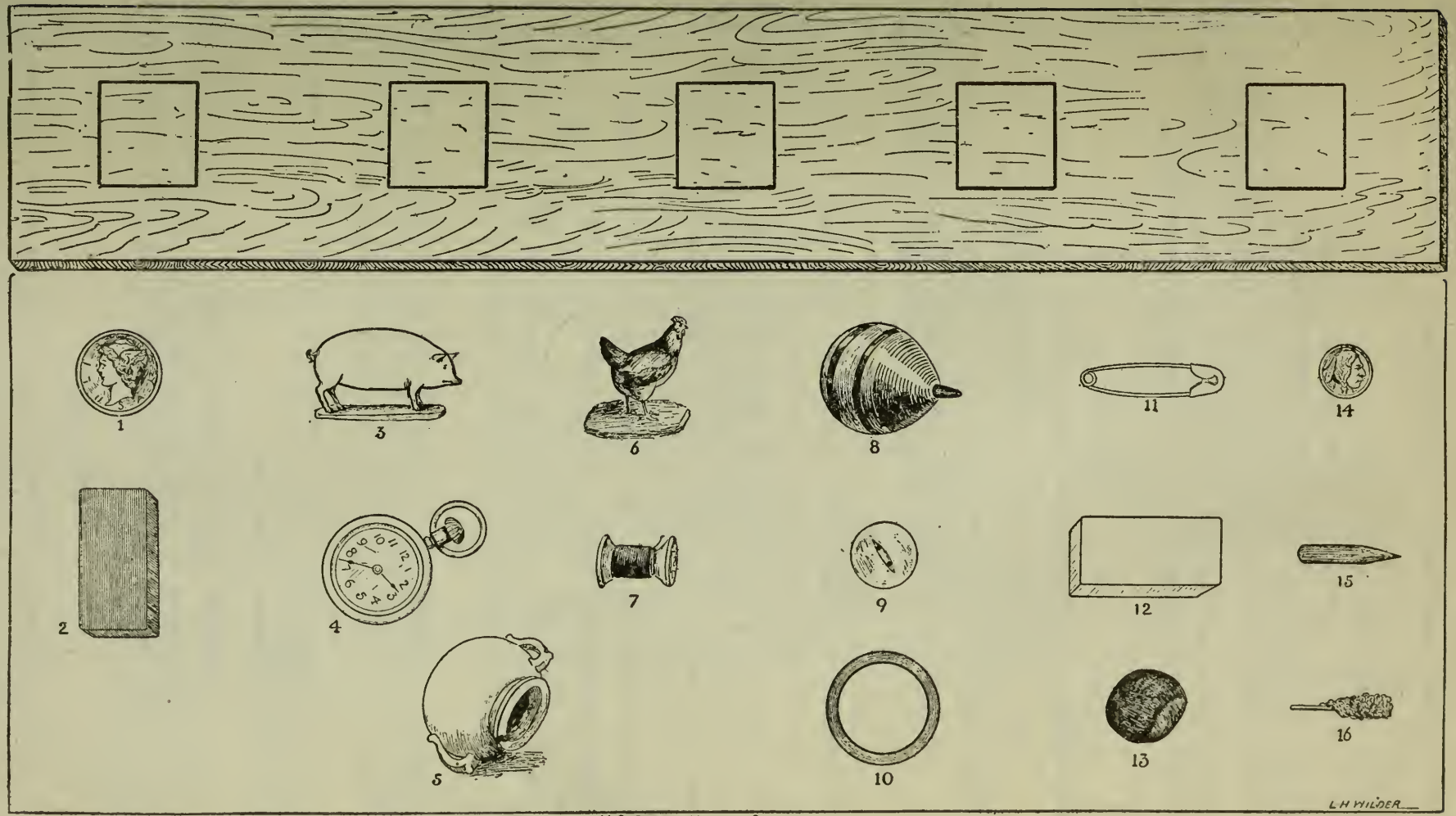

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FIG. 7.—Board and field, with 16 pieces, used in Arranging Objects Tests. 1. Large coin. 2. Red block. 3. Pig. 4. Watch. 5. Dish. 6. Chicken. 7. Spool. 8. Tin top. 9. Button. 10. Ring. 11. Pin. 12. White block. 13. Horse chestnut. 14. Small coin. 15. Pencil. 16. Chain.

The following pieces and arrangements of them represent the different tests that were used at the first trial:

Four-piece.—Chain, nut, red block, pin.
Five-piece.—Spool, dish, watch, ring, nut.
Six-piece.—Button, white block, chicken, pencil, top, dish.
Seven-piece.—Ring, dish, penny, pin, chain, watch, chicken.
Eight-piece.—Spool, button, white block, red block, pin, top, ring, nut.
Nine-piece.—Dish, large coin, chain, penny, button, spool, top, white block, nut.

Except in the case of the Five-Piece Test [1] the same objects, but in reverse order, were used in conducting the second trial.

RESULTS.

The results of these tests are given below:

TABLE 15.—*Results of Arranging Objects Test.*

Group.	Number examined.	Number of aliens arranging different numbers of objects.[1] (One-half point is scored where immigrant uses correct objects in wrong order or 1 incorrect object in right order.)												How the one-half point was scored.	
		9 objects.	8 objects.		7 objects.		6 objects.		5 objects.		4 objects.		3 objects.		
		9 points.	8½ points.	8 points.	7½ points.	7 points.	6½ points.	6 points.	5½ points.	5 points.	4½ points.	4 points.	3½ points.	3 points.	Correct objects: incorrect order.	Correct order: 1 incorrect object.
Literate:																
9–11	12	.....	....	....	....	....	2	2	3	3	2	....	....	....	3	4
Hebrew 9–11	24	.....	....	....	....	....	1	3	3	9	8	....	....	....	6	6
12–14—																
Boys	18	.....	....	....	....	1	1	4	3	6	2	1	....	....	3	3
Girls	19	1	....	....	....	1	1	2	4	4	4	1	1	....	7	3
15-above—																
Men	51	.....	1	....	2	....	3	4	12	11	10	3	3	2	22	9
Women	48	.....	....	1	2	1	1	6	17	8	8	1	3	....	21	10
Illiterate:																
10–11	4	.....	....	....	....	....	....	1	1	2	....	....	....	....	.....	1
12–14	8	.....	....	....	....	....	....	....	1	2	3	....	1	1	3	2
15-above	[2] 28	.....	....	....	....	....	....	3	7	5	6	1	6	....	12	7
Italian:																
Men	20	.....	....	....	....	1	....	2	1	3	4	4	3	2	7	1
Women	[3] 20	.....	....	....	....	....	....	2	1	3	6	....	4	3	8	3
Slav—																
Men	10	.....	....	....	....	....	....	1	2	3	4	....	....	....	5	1
Women	29	.....	....	....	....	2	2	2	7	6	5	4	1	....	9	6

[1] Alien recorded as arranging a given number of objects has also arranged the series containing fewer objects.
[2] 29 examined; 28 recorded.
[3] 1 woman in this group failed to arrange 3 objects.

It will be observed that 40 children under the age of 12 were examined and not one of them scored under 4½ points.

The fact of literacy does not seem to have influenced the execution of this test.

DISCUSSION.

This test is somewhat different from the other memory tests. In addition to retaining and recalling, action on the part of the subject

[1] Pieces used for trial 2 were pig, ring, pencil, red block, top.

is required. It has been found in testing immigrants that, where action is injected into a memory test, the subject makes a better showing than in a test wherein simple verbal recall takes place. This better showing in action-memory tests is more noticeable in the case of "Obeying Commands" than in the present test.

On account of the similarity existing between some of the pieces, undoubtedly in certain instances the acts of comparing and discriminating accompanied the act of recalling.

Occasionally, after the performance of the test, the immigrant was asked as to how he performed it. The answers showed that both auditory and visual methods were employed. When the immigrant performed the test with the assistance of word memories, it was noticed that he performed it by arranging the pieces one after another in regular order either from right to left or from left to right.

In a number of instances the subject would correctly arrange the pieces but would take them up in an irregular order. In these cases the subject almost invariably stated that he held a mental picture of the arranged objects and did not think of their names while replacing them on the board. No attempt was made by the examiner to find how many had succeeded by either the auditory or visual method.

The best record was made by a Norwegian girl, age 14, who scored 9 points. When questioned as to how she succeeded, she said that she did not look at the board but at the field, retaining the exact order in which the examiner removed the pieces from the field. It is possible that she had performed a similar test before.

The successful performance of this test implies that retention takes place over a comparatively long period, which becomes progressively longer as the test proceeds. In other words, the larger the number of objects retained the longer the retention, because it required a longer time for the examiner to return the pieces from the board to the field.

Perseveration was shown by a number of immigrants. For instance, in attempting to do the Six-Piece Test, the alien would carry out the Five-Piece arrangement which had been executed one or two minutes before.

In arranging the different tests a number of immigrants, probably audiles, proceeded in regular order from right to left. This manner of performance is evidently due to ignorance, the immigrant not being sufficiently familiar with right and left order. In many cases this test brought about a strained condition of the attention and fatigue. At times, however, the test seemed to quiet a tremulous, anxious, and otherwise disturbed subject. In some instances standing up while undergoing the test and doing certain things seemed to be productive of a more quiet emotional state and a healthier attitude during the remainder of the examination.

After understanding what is wanted, the average subject assists in the execution of this test. He will turn about, return to the table, and execute the arrangement at the proper time.

An advantage of this test is that it can be executed without the assistance of an interpreter.

NUMBER OF MONTHS IN THE YEAR.

The following table shows how the different groups responded to the question, "How many months are there in a year?"

TABLE 16.—*Results of Number of Months in the Year Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number giving correct answers.	Percentage giving correct answers.	Group.	Number examined.	Number giving correct answers.	Percentage giving correct answers.	Group.	Number examined.	Number giving correct answers.	Percentage giving correct answers.
9–11	12	12	100	10–11	4	4	100	Italian: Women	20	18	90
Hebrew, 9–11	25	24	96	12–14	8	8	100	Slav:			
12–14	37	34	92	15–above	27	26	96	Men	10	9	90
15–above	99	98	99	Italian: Men	20	20	100	Women	30	26	87

NAMES OF MONTHS.

In response to the command "Name the months in the year," the results shown in the following table were obtained. It may be concluded from these results that many normal or average immigrants are unable to perform this test. The men of the *Italian illiterate* group excelled all other illiterate groups.

TABLE 17.—*Results of Names of Months Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number succeeding.	Percentage succeeding.	Group.	Number examined.	Number succeeding.	Percentage succeeding.	Group.	Number examined.	Number succeeding.	Percentage succeeding.
9–11	12	7	58⅓	10–11	4	0	0	Italian: Women	20	11	55
Hebrew 9–11	25	14	56	12–14	8	2	25	Slav:			
12–14	37	27	73	15–above	27	15	55½	Men	8	4	50
15–above	99	85	85½+	Italian: Men	20	16	80	Women	27	5	18½

NUMBER OF DAYS IN THE YEAR.

The question "How many days are there in a year?" was asked each immigrant. On the whole, the replies were very unsatisfactory. The following table shows the number of immigrants who succeeded in giving correct and approximately correct answers (360 to 366), and the number who responded by saying "I don't know," or who

did not approximate the correct reply. It is evident from these tables that illiterate immigrants and young literates can not be expected to give the correct response to this question.

TABLE 18.—*Results of Days in the Year Test.*

Group.	Number examined.	Number giving correct or approximately correct replies.						Number saying "I don't know."	Other replies given. (Superior numeral indicates that two aliens in same group gave same reply.)
		Number who said 365.	Number who said 366.	Number who said 365 and 366.	Number who said 364.	Number who said 363.	Number who said 362.	Number who said 360.	
Literate:									
9–11	12	....	1	....	....	....	....	1	5	356, 355, 350, 150, 135.
Hebrew 9–11	25	1	....	....	....	....	....	2	17	370, 350, 173, 160, 52.
12–14	37	7	2	....	1	....	....	2	13	350², 380, 345, 153, 150, 136, 100, 900, 1,000², 1,063.
15-above—									
Men	51	19	9	4	....	1	1	4	6	375, 300², 376, 165, 126, 65.
Women	49	23	2	1	....	1	....	3	7	375, 352, 350, 344, 316, 300, 500², 600, 656, 102, 1,323.
Illiterate:									
10–11	4	....	....	....	....	....	....	....	3	52.
12–14	8	....	....	....	....	1	....	....	7	
15-above	27	7	....	2	....	1	....	....	11	375, 330, 164, 100, 466, 370 and 371.
Italian—									
Men	[1]20	6	9	....	....	....	....	....	3	310.
Women	20	1	4	....	....	....	....	....	10	300, 500, 100, 30².
Slav—									
Men	9	1	1	2	....	1	....	....	1	300, 370, 253.
Women	30	5	....	1	....	....	....	....	20	385, 350, 300².

[1] One of this subgroup answered 363 or 366.

DATE.

Each immigrant was questioned as to the month, day of month, and day of week. The results were as follows:

TABLE 19.—*Results of the Date Tests.*

Test.	Literates.				Illiterates.						
	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
Month.	9–11	12	7	58⅓	10–11	4	0	0	Italian: Women.	20	16	80
	Hebrew 9–11	25	85	32	12–14	8	4	50	Slav:			
	12–14	37	24	64½+	15-above	27	17	63 —	Men	10	4	40
	15-above	99	88	88½+	Italian: Men	20	17	85	Women	30	11	36⅔
Day of month.	9–11	12	3	25	10–11	4	0	0	Italian: Women.	20	9	45
	Hebrew 9–11	25	1	4	12–14	8	3	37½	Slav:			
	12–14	37	14	37½+	15-above	27	12	44½+	Men	10	2	10
	15-above	99	66	66⅔	Italian: Men	20	12	60	Women	30	3	10
Day of week.	9–11	12	9	75	10–11	4	3	75	Italian: Women.	20	15	75
	Hebrew 9–11	25	23	92	12–14	8	5	62½	Slav:			
	12–14	37	32	86½	15-above	27	18	66⅔	Men	10	9	90
	15-above	99	89	89½+	Italian: Men	20	16	80	Women	30	29	96⅔

The above table shows that in responding as to what month it was, 75 per cent of the *literate 15 and above* and *Italian illiterate* groups succeeded, while the other groups made a poor showing.

In responding to the question as to what day of the month it was the *literate 15 and above* group made the best showing, 66⅔ per cent of their number giving the correct day of the month.

In responding to the question as to what day in the week it was, 75 per cent of all the immigrants examined gave the correct reply. However, the *illiterate 12–14* and *illiterate 15 and above* groups fell below the 75 per cent mark.

From these results it may be concluded:

That many normal immigrants above the age of 9, when questioned in regard to the date, are unable to give the correct month or day of the month, but are able to give the correct day of the week.

NUMBER OF DAYS IN WEEK.

The question "How many days are there in a week?" was asked of each immigrant. Most frequently a correct response was given, but 8 and 6 were also frequent answers. The following table shows the exact replies.

TABLE 20.—*Results of Number of Days in Week Test.*

Group.	Number examined.	Number giving correct reply.	Number saying "I don't know."	Number giving other replies.			
				Number who said 5.	Number who said 6.	Number who said 8.	Number who said 14.
Literate:							
9–11	12	8			3		1
Hebrew 9–11	25	22				3	
12–14	37	34			3		
15-above	99	67			24	8	
Illiterate:							
10–11	4	3	1				
12–14	8	3	1		3	1	
15-above	27	14	1		11	1	
Italian—							
Men	20	11	1		7	1	
Women	20	13		1	6		
Slav—							
Men	10	8			1	1	
Women	30	14			16		

NAMES OF DAYS IN WEEK.

Each immigrant was requested to name the days in the week. Seventy-five per cent of every group succeeded. The literates excelled the illiterates. The following table gives the results.

TABLE 21.—*Results of Naming the Week Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	12	12	100	10–11	4	3	75	Italian: Women	20	19	95
Hebrew 9–11	25	24	96	12–14	8	7	87½	Slav:			
12–14	37	37	100	15-above	27	26	96⅓	Men	10	10	100
15-above	100	100	100	Italian: Men	20	17	85	Women	30	30	100

NAME OF SHIP.

Each immigrant was asked the name of the ship upon which he had come.

Table 22 shows that the literates excel the illiterates in this test. Many illiterates fail to answer the question. It is interesting to note how well the Italians, both men and women, responded to this question. It is possible that the frequent going and coming of this race and the interest in emigration manifested by the Italian Government may have something to do with the satisfactory replies which the Italians make to this question.

TABLE 22.—*Results of Name of Ship Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	12	11	91⅔	10–11	4	2	50	Italian: Women	19	17	89½
Hebrew, 9–11	24	22	91⅔	12–14	8	5	62½	Slav:			
12–14	37	34	91⅓	15-above	27	23	85+	Men	10	6	60
15-above	98	85	86½+	Italian: Men	20	20	100	Women	30	17	56⅔

COPYING AND DRAWING FROM MEMORY.

In this experiment the immigrant copied 5 geometrical figures and drew 3 such figures from memory. (See fig. 8.)

METHOD OF TESTING.

Drawings on cards of 5 geometrical figures—a square, diamond, double trapezoid, bent-wire figure, and allied-Ziehen figure—were placed one at a time in front of the immigrant, who copied them on definite parts of paper ruled for the purpose.

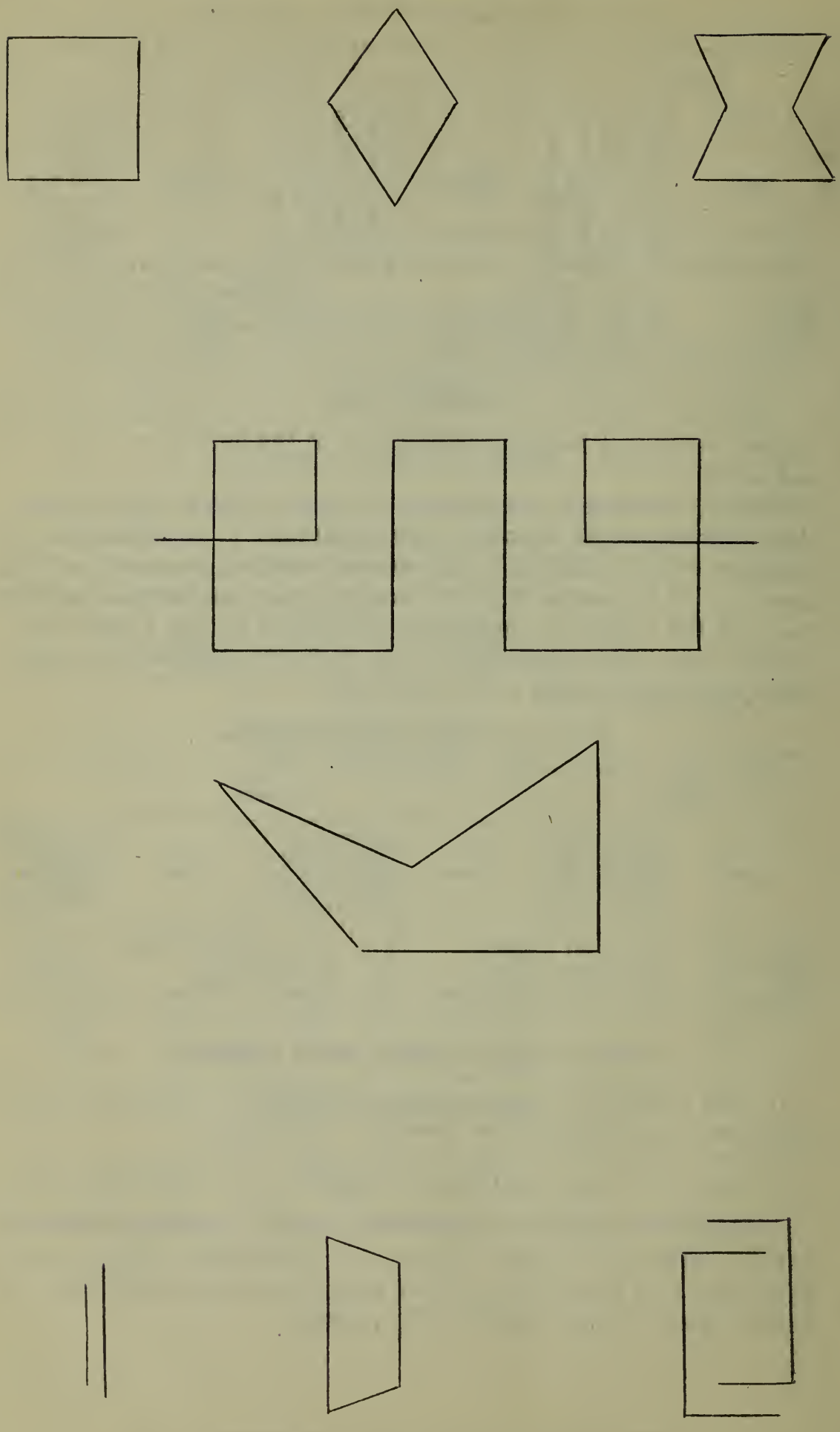

FIG. 8.—Geometrical forms used in copying and drawing from memory.

The first memory drawing was of two parallel lines and was used simply to introduce the test. The other geometrical figures used were a trapezoid and an interlocking figure, the former being exposed for 5 seconds, the latter for 10. Immediately after each exposure the immigrant made his drawing from memory.

Frequently, in the case of illiterates, the question was asked, "Have you ever had a pencil in your hand before?" Many responded in the negative.

The drawings were made in pencil, and at the termination of the examination they were traced in ink for preservation and reproduction.

CLASSIFICATION OF IMMIGRANTS' DRAWINGS.

Each immigrant's drawing, with the exception of the square and parallel lines, was placed in one of three grades by the mutual agreement of the interpreter and the examiner. If they disagreed as to how a drawing should be classified, a third person was called in to consider the drawing carefully and make the final decision as to classification. The poorest drawings were placed in grade 1, while the best ones were placed in grade 3. For the purpose of classification two standard drawings were made of each geometrical figure and arranged one above the other. (See fig. 9.) The upper standard in each instance was a better drawing and approached the original geometrical figure more closely in appearance than the lower one.

To be entitled to grade 3, an immigrant's drawing would have to be at least as good as the upper standard. To be classed in grade 2, the drawing would have to be equal to or better than the lower standard. If a drawing was not as good as the lower standard, it was placed in grade 1.

In placing a drawing in one of the three grades the examiner and interpreter in each case considered the following points:

(1) How did the drawing which was to be classified resemble the original in general appearance?

(2) Could a person who had not seen the original drawing tell from what design the drawing in question was copied or memorized?

(3) The drawing to be graded was considered and compared with the two standards; that is, comparisons were made between the drawing and standards as regards the straightness of lines and trueness of angles. The proportion of one element of the drawing to another element was compared with the proportions of the standards. The completion of lines and the introduction of extra lines into the drawing were considered. The good features of the drawing were permitted to counterbalance the bad ones of the standards, and vice versa.

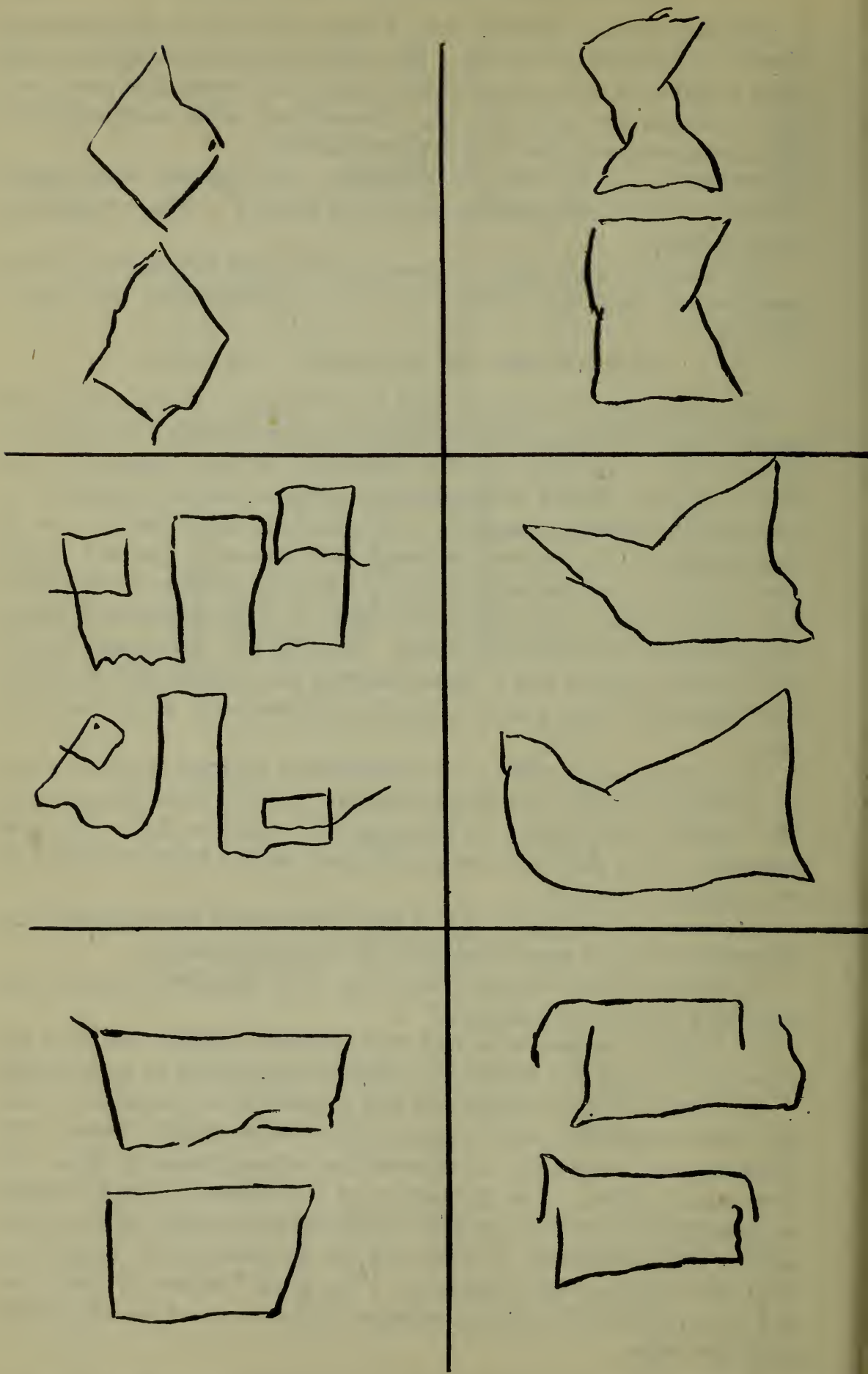

FIG. 9.—Two standards for each design, used in grading the immigrant's drawings in copying and drawing from memory.

(4) Where certain elements of a drawing suggested that it be placed in grade 1 and other elements suggested that it be placed in grade 3, it was placed in grade 2.

(5) In order for the examiner to place in grade 3 a memory drawing of the interlocking figure, the general outline of the figure and proper overlapping would have to be carried out. To be placed in grade 2, the drawing would need a correct outline and some overlapping, even if the overlapping was incorrect.

SPECIMEN DRAWINGS.

Thirty drawings are reproduced herewith (figs. 10–39). They include the drawings of the 10 men and the first 10 women of the *Slav illiterate* group, the 4 children of the *illiterate 10–11* group, and the first 6 children of the *literate 9–11* group. The figures are photographed from the originals on which the pencil lines had been inked in.[1]

RESULTS.

The results of these tests are given in the following tables:

TABLE 23.—*Results of Copying Tests.*

Group.	Number examined.	Number of aliens making the different grades.												Averages.								
		Diamond.			Double trapezoid.			Bent-wire figure.			Allied-Ziehen figure.											
		Grade 3.	Grade 2.	Grade 1.	Grade 3.	Grade 2.	Grade 1.	Grade 3.	Grade 2.	Grade 1.	Grade 3.	Grade 2.	Grade 1.	3	2.75	2.50	2.25	2	1.75	1.50	1.25	1
Literates:																						
9–11	12	9	1	2	12	...	....	12	...	....	11	...	1	9	1	1	...	...	...	...	...	..
Hebrew 9–11	25	21	2	2	22	1	2	24	...	1	20	3	2	16	4	3	1	...	...	...	1	..
12–14	37	33	3	1	33	4	....	35	1	1	31	2	4	25	6	5	...	...	...	1	...	..
15-above	100	86	6	8	84	4	12	93	5	2	74	12	14	68	9	7	5	2	5	2	...	2
Illiterates:																						
10–11	4	....	2	2	3	...	1	3	...	1	1	1	2	....	...	1	1	1	...	1	...	..
12–14	8	5	...	3	5	...	3	3	2	3	3	1	4	2	...	1	1	1	...	1	2	..
15-above	29	18	2	9	16	6	7	22	1	6	15	3	11	13	1	1	3	3	1	3	1	3
Italian—																						
Men	20	11	2	7	16	1	3	14	1	5	10	3	7	10	1	1	1	1	...	3	1	2
Women	20	5	4	11	7	...	13	8	1	11	4	3	13	2	3	1	...	1	2	...	3	8
Slav—																						
Men	10	8	1	1	7	2	1	10	...	....	7	1	2	5	1	3	...	...	1	...	...	..
Women	30	17	1	12	20	4	6	19	1	10	15	3	12	11	3	3	2	1	...	3	4	3

[1] It is to be noted, however, that for the sake of compactness the designs are placed closer together than in the original drawings.

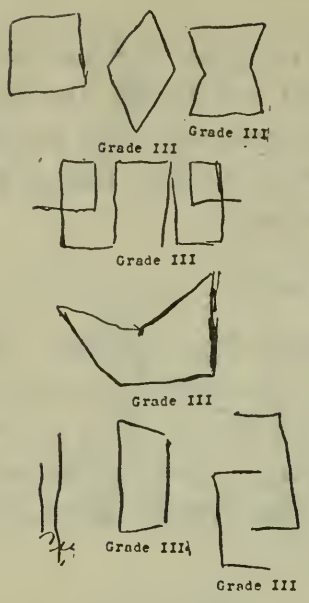

Fig. 10. Copying and drawing from memory by Russian (No. 10 in group), male, 16 years of age, 3½ months' schooling.

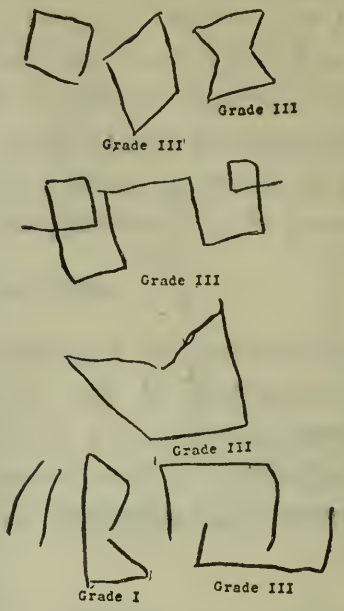

Fig. 11. Copying and drawing from memory by Russian (No. 25 in group), male, 16 years of age, no schooling.

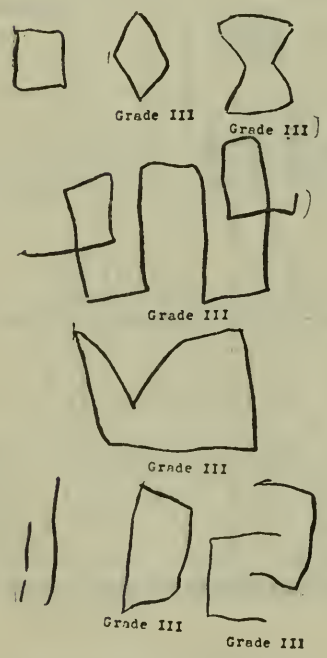

Fig. 12. Copying and drawing from memory by Austrian Ruthenian (No. 25 in group), male, 16 years of age, no schooling. (Never used pencil before.)

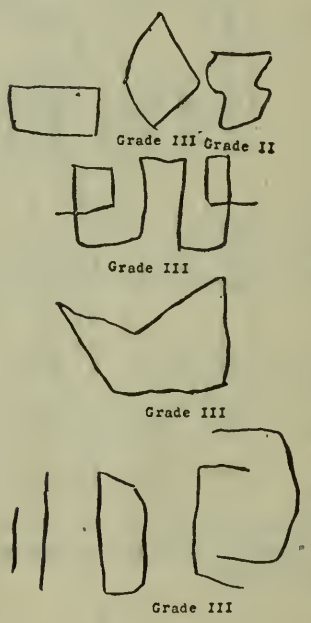

Fig. 13. Copying and drawing from memory by Russian (No. 1 in group), male, 18 years of age, 3 months' schooling.

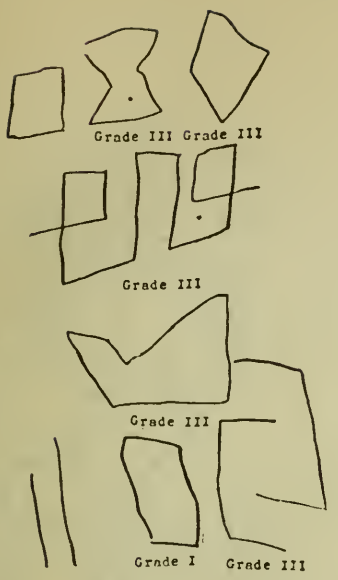

Fig. 14. Copying and drawing from memory by Russian (No. 7 in group), male, 18 years of age, 5 months' schooling.

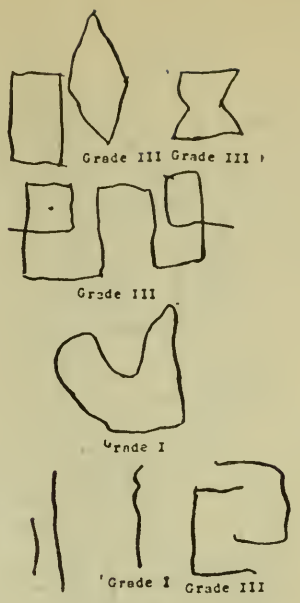

Fig. 15. Copying and drawing from memory by Russian Pole (No. 5 in group), male, 20 years of age, no schooling. (Never used pencil before.)

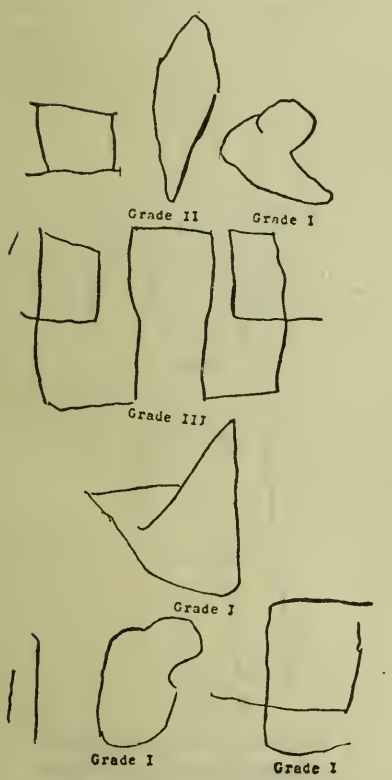

Fig. 16. Copying and drawing from memory by Russian Ruthenian (No. 9 in group), male, 22 years o age, no schooling. (Never used pencil before.)

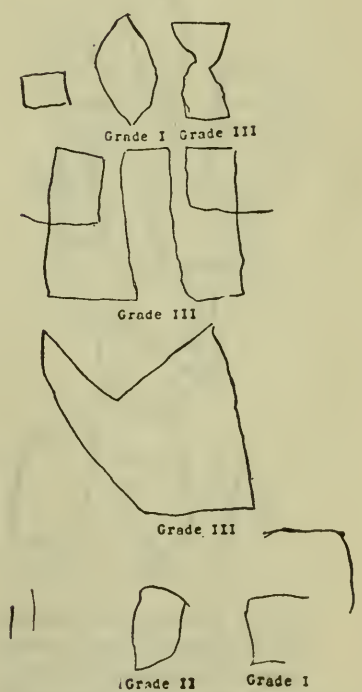

Fig. 17. Copying and drawing from memory by Austrian Ruthenian (No. 11 in group), male, 24 years of age, no schooling.

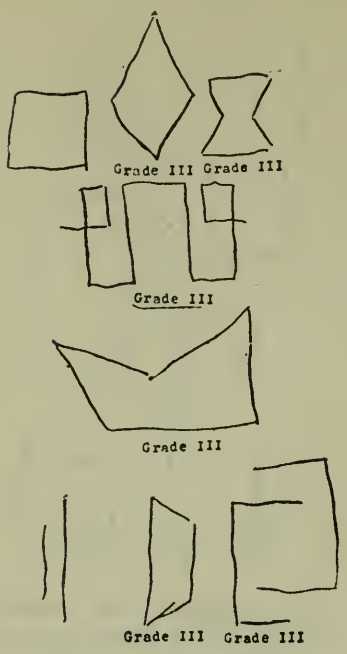

Fig. 18. Copying and drawing from memory by Pole (No. 7 in group), male, 28 years of age, 5 months' schooling.

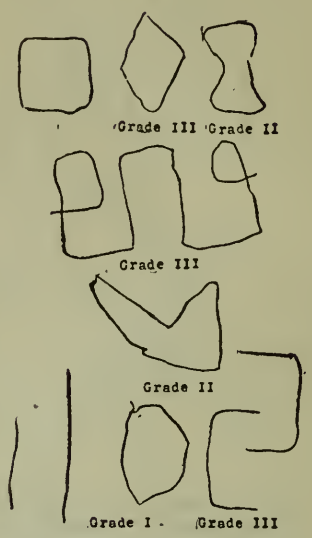

Fig. 19. Copying and drawing from memory by Russian (No. 9 in group), male, 33 years of age, no schooling.

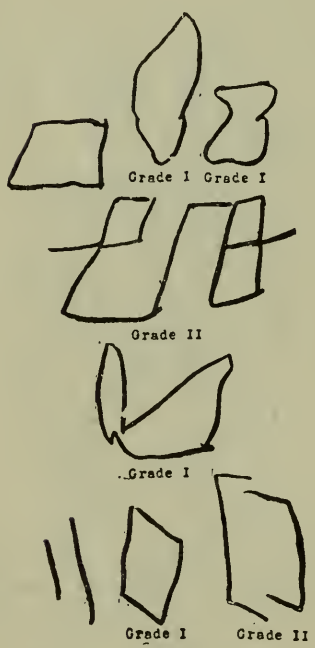

Fig. 20. Copying and drawing from memory by Russian (No. 26 in group), female, 12 years of age, 3 months' schooling.

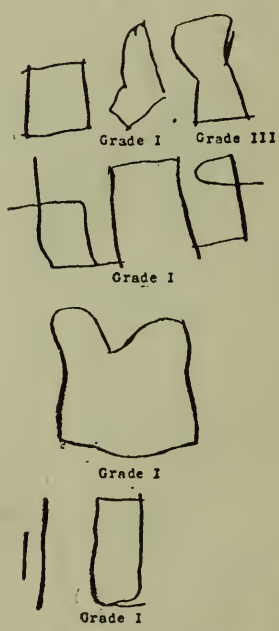

Fig. 21. Copying and drawing from memory by Austrian Ruthenian (No. 22 in group), female, 14 years of age, no schooling. (Alien said, "I never saw a pencil before.")

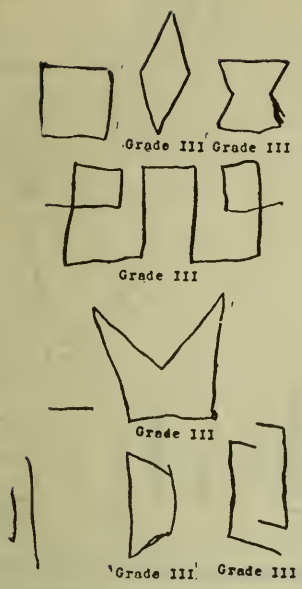

Fig. 22. Copying and drawing from memory by Austrian Ruthenian (No. 7 in group), female, 16 years of age, 4 months' schooling.

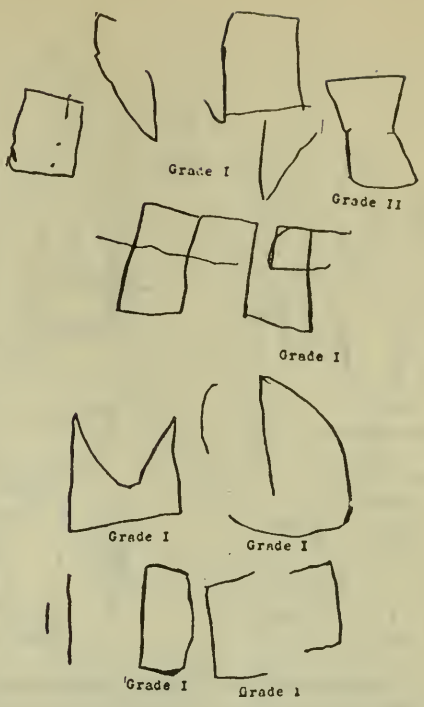

Fig. 23. Copying and drawing from memory by Austrian Ruthenian (No. 14 in group), female, 16 years of age, no schooling. (Never used pencil before.)

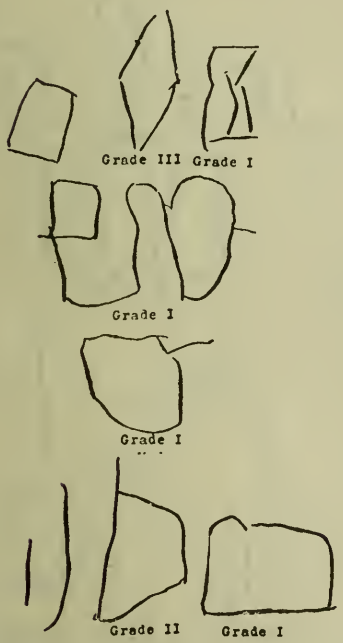

Fig. 24. Copying and drawing from memory by Russian Pole (No. 11 in group), female, 17 years of age, no schooling. (Never used pencil before.)

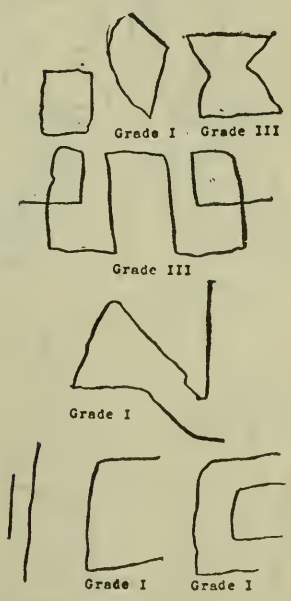

Fig. 25. Copying and drawing from memory by Russian (No. 4 in group), female, 17 years of age, no schooling. (Never used pencil before.)

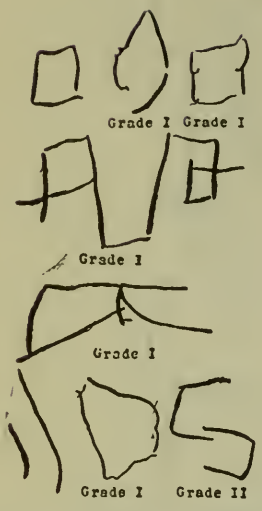

Fig. 26. Copying and drawing from memory by Russian Pole (No. 8 in group), female, 17 years of age, no schooling.

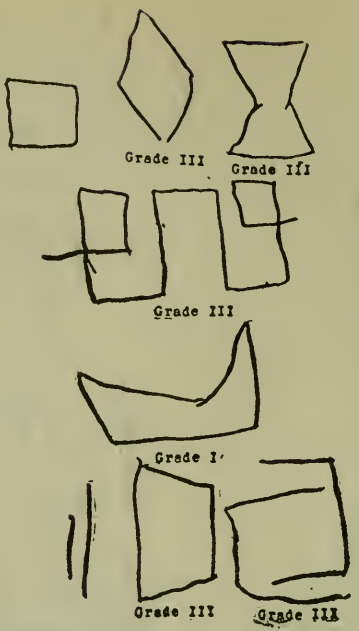

Fig. 27. Copying and drawing from memory by Austrian Ruthenian (No. 19 in group), female, 17 years of age, no schooling. (Never used pencil before.)

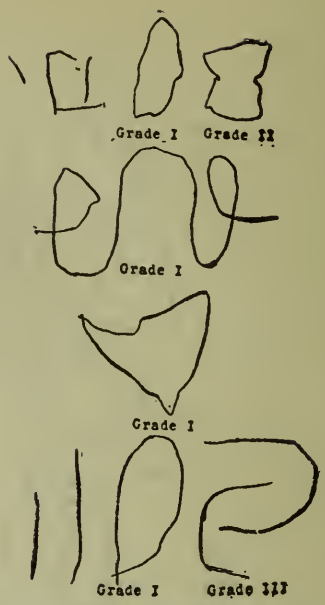

Fig. 28. Copying and drawing from memory by Russian Pole (No. 4 in group), female, 11 years of age, no schooling. (Never used pencil before.)

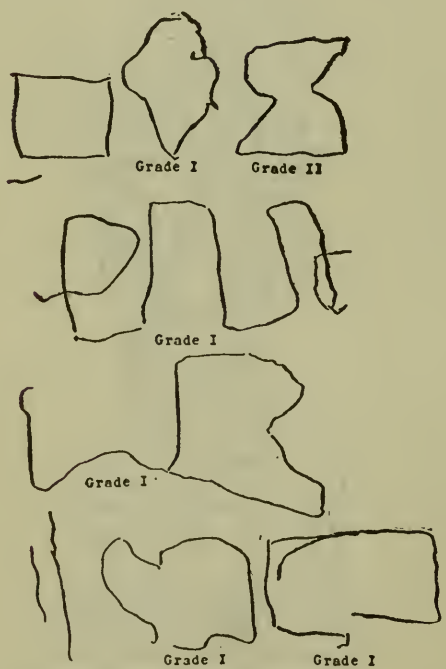

Fig. 29. Copying and drawing from memory by Russian (No. 22 in group), female, 18 years of age, no schooling.

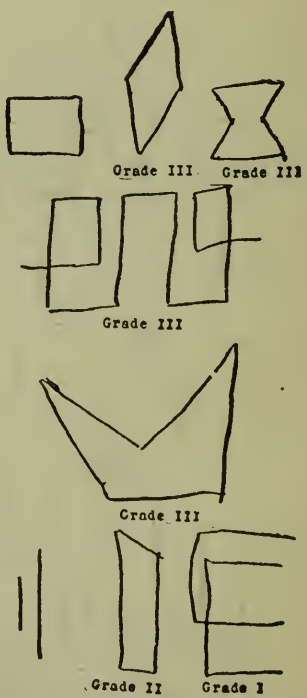

Fig. 30. Copying and drawing from memory by Italian (No. 13 in group), male, 9 years of age, 3 years' schooling.

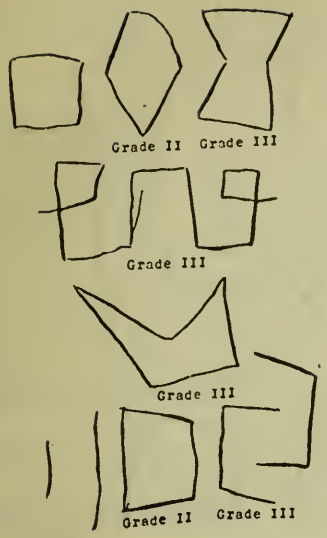

Fig. 31. Copying and drawing from memory by Norwegian (No. 1 in group), female, 9 years of age, 1½ years' schooling.

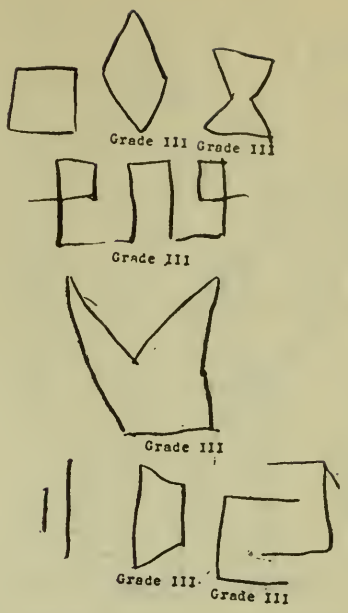

Fig. 32. Copying and drawing from memory by Italian (No. 88 in group), male, 10 years of age, 2 years' schooling.

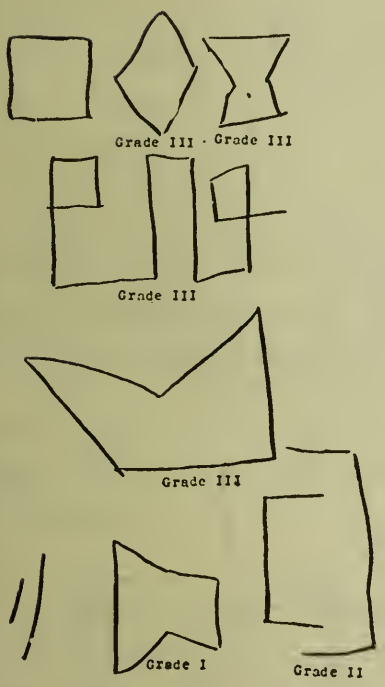

Fig. 33. Copying and drawing from memory by Italian (No. 85 in group), male, 10 years of age, 1 year schooling.

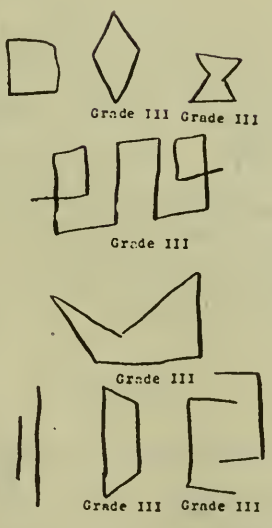

Fig. 34. Copying and drawing from memory by Dane (No. 1 in group), female, 10 years of age, 4 years' schooling.

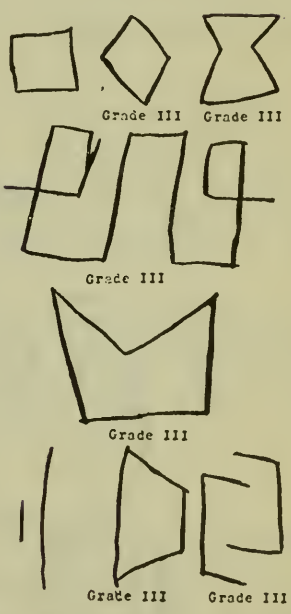

Fig. 35. Copying and drawing from memory by Turkish Greek (No. 9 in group), female, 10 years of age, 3 years' schooling.

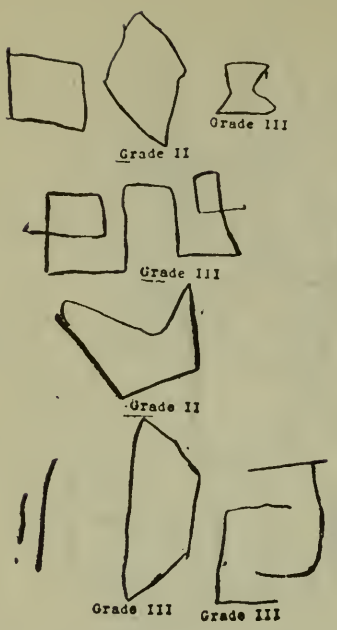

Fig. 36. Copying and drawing from memory by Russian (No. 16 in group), male, 10 years of age, no schooling. (Alien said, "A boy showed me how to use a pencil.")

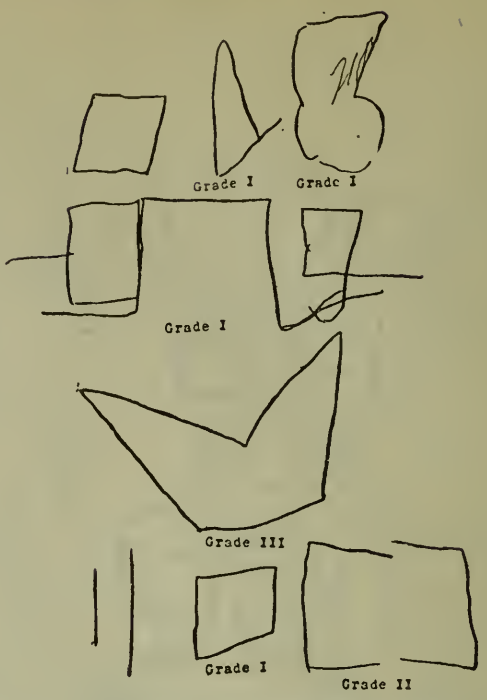

Fig. 37. Copying and drawing from memory by Russian Hebrew (No. 7 in group), female, 10 years of age, no schooling.

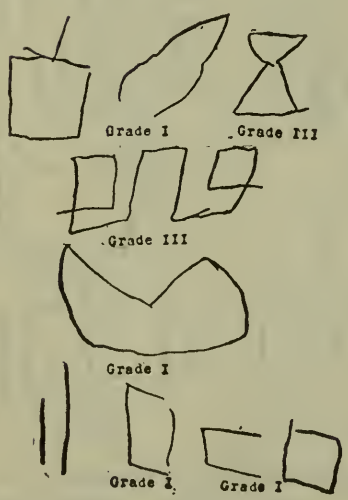

Fig. 38. Copying and drawing from memory by Russian Hebrew (No. 1 in group), female, 11 years of age, no schooling.

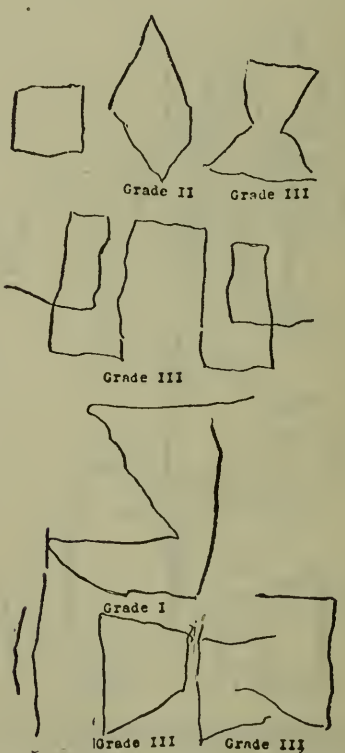

Fig. 39. Copying and drawing from memory by Russian (No. 17 in group), female, 11 years of age, no schooling. (Never used a pencil before.)

TABLE 24.—*Results of Copying from Memory Tests.*

Group.	Number examined.	Number of aliens making the different grades.						Averages.				
		Trapezoid.			Interlocking figure.							
		Grade 3.	Grade 2.	Grade 1.	Grade 3.	Grade 2.	Grade 1.	3	2.50	2	1.50	1
Literates:												
9–11	12	8	2	2	10	1	1	8	1	1	2	....
Hebrew 9–11	25	18	1	6	17	5	3	11	5	8	1	....
12–14	37	30	3	4	22	4	11	21	3	7	4	2
15-above	100	80	7	13	67	13	20	57	16	17	4	6
Illiterates:												
10–11	4	2	.....	2	2	1	1	2	.....	....	1	1
12–14	8	2	1	5	4	1	3	2	.....	2	2	2
15-above	29	15	5	9	16	4	[1] 8	10	7	4	1	7
Italian—												
Men	20	13	.....	7	6	7	7	6	4	3	3	4
Women	20	5	1	14	7	1	12	4	.....	4	2	10
Slav—												
Men	10	4	1	5	8	.....	2	4	.....	4	1	1
Women	30	13	1	16	16	6	[2] 7	9	2	9	5	4

[1] One drawing not recorded. [2] One alien in this group did not draw the interlocking figure.

SUMMARY OF RESULTS.

In copying, the majority of immigrants made an average grade for the four drawings of at least 2. The average grade 3 was made more often than any other single grade. The literates excelled the illiterates. The men of the *Italian illiterate* group excelled the women, the women of this group making the poorest showing of all groups or subgroups in this test. The bent-wire figure was copied with more success than the other designs. The allied-Ziehen figure was copied with the least success.

In drawing from memory, the majority of immigrants made an average grade for the two drawings of at least 2. However, as many women of the *Italian illiterate* group and children of the illiterate groups fell below grade 2 as above it. As would be expected, the literates excelled the illiterates in this test.

The literates were a little more successful in drawing the trapezoid than they were in drawing the interlocking figure, while the illiterates, doing a poorer grade of work, did equally well with both drawings.

DISCUSSION.

A glance at the above actual drawings will prove that formal schooling is the greatest factor in the successful performance of these two tests. Only a small amount of schooling, even two or three months, renders the alien capable of doing these tests comparatively well.

In some instances, where illiterate immigrants made a good grade in these tests, it was found that they had handled a pencil before, although they had never learned to write.

At many institutions for the feeble-minded are to be found specimens of fine drawing, executed by the inmates, which undoubtedly are the result of practice. Many immigrants who made a poor showing in these tests, whose drawings would be considered the productions of an idiot by an inexperienced person, made good records on other tests.

It is certain that if a diagnosis of mental defect was to be made on drawing ability alone, many intelligent immigrants would be excluded. Hence it may be concluded that in the mental examination of an arriving immigrant a poor drawing means nothing in itself.

Whenever an immigrant copies poorly or fails at memory drawing, it may be well to ascertain whether he has been to school, and if so, how long; whether he has tried to draw or write with a pencil at home. It would be well to give him a number of trials in drawing at the same and at subsequent examinations in order to get an idea of his learning ability in this direction. If an immigrant has attended school and has had every opportunity to learn to write and then executes a poor drawing, defect in the subject's analytic and visual retentive powers would be suspected.

Some immigrants made grade 1 in certain drawings, but redeemed themselves in making higher grades with the others. Just as in any other test, a temporary emotional disturbance or some accidental cause at times may be productive of low-grade work. Hence every detail on a drawing chart should be considered and weighed in connection with the previous experience of the individual.

It is thought that certain occupations among immigrants give a training in form perception which materially assists in the execution of drawing tests. Two illiterate Ruthanian girls (Nos. 20 and 21), who had never held pencils in their hands before, did well in drawing. They wore jackets, the sleeves of which were decorated with different colored geometrical figures which they had embroidered. It is probable that this training in embroidering was of much assistance to them in executing these drawing tests.

During the execution of these tests a number of peculiarities in the manner of holding the pencil and manner of executing the drawing were observed.

TRANSITIONAL TESTS (NONARITHMETICAL).

ENUMERATING DAYS OF WEEK BACKWARD.

After enumerating the days of the week, the subject was requested to recite them in the reverse order. He was allowed two trials.

The results are given in the following table:

TABLE 25.—*Result of Enumerating Days Backward Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	12	11	91⅔	10–11	4	2	50	Italian—Women.	19	13	68+
Hebrew, 9–11	25	25	100	12–14	8	7	87½	Slav:			
12–14	37	35	94½+	15, above	27	24	89 −	Men	10	9	90
15, above	100	99	99	Italian—Men	20	17	85	Women	30	29	96

The *illiterate 10–11* and women of the *Italian illiterate* group did poorly in this test. Seventy-five per cent of the members of all the other groups succeeded. The only failure in the *literate 15 and above* group was a male Armenian, 19 years old, who had attended school 10 years and who averaged well on the other tests.

DISCUSSION.

In this test is involved the conversion of a fixed association into a demand association. The order of week days has to be reversed by the subject. It is a new demand upon him; in many cases he has never done it before. There are several mental processes by which he can come forth with the correct response. The sagacity of the normal immigrant enables him to select a method, and by voluntarily attending to the method he accomplishes the task. One method is to enumerate to oneself the days of the week in the regular order, to pronounce aloud and retain the last day thus enumerated, and to repeat this method until the task is completed. Another method is to break up a fixed series into parts and to recite to oneself an association combination such as ,"Wednesday, Thursday, Friday," and immediately reversing it in telling it to the examiner. This method would be repeated until the task is finished.

On a second examination to test controlled associative power (thinking power) the days backward or any test previously used should not

be selected. If possible, a new problem should be selected, one which will make the subjects analyze and rearrange their fixed associations.

Counting backwards, spelling words backwards, enumerating the months in a reverse order, being in the nature of new problems, would more easily enable the examiner to determine the presence and quality of controlled associative power than a test in which the subject had perhaps been coached since the first examination.

OPPOSITES.

Opposites were used in this experiment at the suggestion of Prof. R. S. Woodworth, Department of Psychology, ColumbiaUniversity. Eight simple words were selected. The subject was asked to give words that were opposites of these 8 words.

METHOD OF TESTING.

The interpreter selected 4 words—man, day, good, inside—and repeatedly gave the opposites of them in order that the immigrant could comprehend what the test required. For instance, looking directly at the immigrant and moving his hand from side to side, the interpreter would say: "The opposite of man is woman. The opposite of woman is man. Man-woman, woman-man, man-woman." After explaining the opposites of the remaining words in the same way, he would go through the same 4 words again and again, frequently getting the immigrant to supply the correct opposite. It usually required three or four minutes for the immigrant to grasp the idea of the test.

The test proper then began by asking the immigrant "What is the opposite of cold?"

If an immigrant gave an incorrect reply or if he hesitated unduly long, the same question was again put to him. His reply was then written down on his examination chart, and he was immediately tested with the next word, "high."

The following 8 words were used in this test [1] in the order given:

cold	yes	sick	boy
high	rich	up	winter

"Hot" and "warm" were considered the correct opposites of "cold"; "girl," "man," "grown-up person" were considered correct opposites of "boy"; "healthy" and "healthy person" were considered correct opposites of "sick."

[1] The following words, in addition to those used in the experiment, were proven to be the easiest in a list of 40 opposites (Woodworth suggests that they be substituted, 8 at a time, in the event of a second or third examination): Out, white, slow, above, north, top, wet, front, long, east, big, and love.

RESULTS.

The results are contained in the following table:

TABLE 26.—*Results of Opposites Test.*

Group.	Number examined.	5 or more correct answers.					Less than 5 correct answers.					
		Number of aliens.				Percentage.	Number of aliens.					Percentage.
		8 correct answers.	7 correct answers.	6 correct answers.	5 correct answers.		4 correct answers.	3 correct answers.	2 correct answers.	1 correct answer.	0 correct answers.	
Literates:												
9–11	12	7	3	1	1	100	.....	.....	.....	.....	.....	0
Hebrew, 9–11	25	20	3	1	1	100	.....	.....	.....	.....	.....	0
12–14	37	17	11	2	2	86½	2	1	1	1	.....	13½
15–above	100	59	22	14	1	96	2	.....	.....	.....	2	4
Illiterates:												
10–11	4	1	2	1	.....	100	.....	.....	.....	.....	.....	0
12–14	8	5	.....	2	.....	87½	.....	.....	.....	.....	1	12½
15–above	27	13	6	2	2	85 +	.....	1	3	.....	.....	15 −
Italian—												
Men	20	2	5	5	.....	60	1	2	2	2	1	40
Women	20	1	2	1	1	25	.....	2	1	9	3	75
Slav—												
Men	10	3	3	3	.....	90	.....	1	.....	.....	.....	10
Women	30	5	10	11	3	96⅔	1	.....	.....	.....	.....	3⅓

It will be seen that, with the exception of the *Italian illiterate* group, 75 per cent of every group succeeded in giving the correct opposites in 5 out of 8 cases. Although the men of the *Italian illiterate* group dropped below the 75 per cent mark, they excelled the women. The *Slav illiterate* group made an excellent showing, the women excelling the men.

DISCUSSION.

This test was given at the end of the examination, and in a general way the result may be said to be in part an index of mentation after one and one-half hours of continuous mental work.

On the whole, average immigrants above the age of 9 do well in this test after it has been properly explained to them. The test had been tried at Ellis Island a number of times during the past few years but always with unsatisfactory results. It is now thought that in all the trials which proved unsatisfactory the preliminary explanation was at fault. It is important to emphasize that the interpreter in explaining must go over and over the sample words with the immigrant until the latter understands the nature of the test.

After this test is tried on a number of immigrants the examiner will become familiar with the comprehension power of the normal subject. In the preliminary explanation, when simple words are used, the rapidity with which the subject understands what is wanted of him is perhaps an index of his comprehension power.

This is a test in controlled association and permits of slight if any variation in the reply.

Should this test be used at repeated examinations, it is obvious that a series of new words would have to be used (see footnote, p. 74). Familiarity with the test and learning ability should enable the immigrant to make a better score at the second examination than he does at the first.

Many immigrants showed that their mentation was striving in the right direction, even if they did not name the exact opposite. Examples of this kind were "female" for the opposite of "boy," "winter" for the opposite of "spring." Careful attention to mistakes of this kind is necessary on the part of the examiner and will assist in differentiating lack of native ability from ignorance.

Many of the Russians, and more especially the Ruthenians, failed on the opposite of "yes." It is certain that their score would have been higher had another simple word been substituted.

FIVE ANIMALS.

The ability to recognize the pictures of animals was tested by placing pictures of a horse, cow, pig, donkey, and dog [1] in succession in front of the immigrant and exposing each picture sufficiently long for the alien to name the animal which was represented.

This test was performed on a comparatively small number of immigrants. Forty could not be included as they had been given the Inverted Picture Test. (See p. 77.)

The test was considered a failure if a single mistake was made.

RESULTS.

The results are given in the following table:

TABLE 27.—*Results of Five Animals Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	8	6	75	10–11	2	2	100	Italian: Women	12	9	75
Hebrew, 9–11	20	8	40	12–14	6	5	83⅓	Slav:			
12–14	30	24	80	15–above	19	13	68+	Men	10	7	70
15–above	69	58	84+	Italian: Men	14	10	71+	Women	25	8	32

DISCUSSION.

Owing to the small number of subjects examined no definite conclusions should be drawn from this test in regard to the results obtained by the different groups. It is safe to say, however, that to give correctly the names of the 5 animals here presented is not altogether an easy matter for immigrants.

[1] A picture of a St. Bernard dog was used.

In order to recognize the animals portrayed, the immigrant must be familiar with them, and must be able to make a discrimination between these animals and those of similar appearance. It is possible that some have never seen dogs similar to the one here pictured.

Many of the failures were due to the fact that the alien was not sufficiently specific in his reply, as when he said horse for donkey. This was the most common mistake. It may sometimes have been due to the fact that he had never seen a donkey.

The following are examples of the mistakes made, the name to the left indicating the picture:

cow { bull. / ox. / steer.

donkey { colt. / mule. / little horse.

dog { tiger. / wolf. / lion. / bear. / cat.

pig { buffalo. / ox. / cow. / deer.

The picture of the horse is the only one about which no mistake was made. The pig was called ox, cow, and deer by three children of the *Hebrew literate* group.

INVERTED ANIMALS.

The pictures of 5 animals—horse, cow, donkey, pig, dog—were presented in an up-side-down position in order to see if this baffling [1] would interfere with the immigrant's perceptive powers.

A mistake in naming 1 animal was sufficient for the whole test to be considered a failure. Twenty-six out of 40 immigrants tested succeeded in making the correct perceptions in the case of all 5 animals. Practically all of them succeeded in correctly naming 3 or 4 of the animals. This ability to name the pictures of these animals correctly when in an up-side-down position was found in several immigrant children of 3 and 4 years of age. What was said in regard to the Animal Recognition Test is likewise applicable to this test.

The tabulated results follow:

TABLE 28.—*Results of Inverted Animals Test.*

Literates.				Illiterates.			
Group.	Number examined.	Number successful.	Percentage successful.	Group	Number examined.	Number successful.	Percentage successful.
9–11	4	3	75	12–14	1	1	100
Hebrew 9–11	8	4	50	15-above	3	2	66⅔
12–14	8	6	75	Slav women	5	3	60
15-above	11	7	63½				

[1] A purposive attempt to interfere with perception.

COLORS.

The ability to recognize colors was determined by placing 4 colored cards—red, black, green, yellow—in front of the immigrant and getting him to name the colors.

RESULTS.

The results are given in the following table:

TABLE 29.—*Results of Color Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	12	11	91⅔	10–11	4	4	100	Italian: Women	20	18	90
Hebrew 9–11	25	22	88	12–14	8	7	87½	Slav:			
12–14	37	35	94½+	15–above	27	24	88½+	Men	10	8	80
15–above	98	87	88½+	Italian: Men	20	16	80	Women	30	21	70

DISCUSSION.

When a failure occurred, it usually pertained to one color. Exceptionally the subject failed in giving the color of two cards. An example of this was the fifth man of the *Slav illiterate* group. This man gave pink for red and blue for green. Some of the mistakes were the calling of—

Brown, Cloth, Coffee, Dark, Gray, Indigo, Lead — instead of black.

Blue, Chestnut, Heavenly, Violet, Yellow — instead of green.

Blue, Pink, Yellow — instead of red.

The most frequent mistake was to give another color for green. It is thought that the mistakes were more often due to ignorance than to a real lack of discriminative ability; however, color blindness probably played an important part where mistakes were made.

Seventy-five per cent of every group, except the women of the *Slav illiterate* group, succeeded in correctly naming the four colors.

It is interesting to note that the women of the *Italian illiterate* group excelled the women of the *Slav illiterate* group. They also excelled the men of their own group, as well as the men of the Slav group. A fact worth noticing also is the perfect record made by the 4 members of the *illiterate 10–11* group.

COINS.

Each immigrant was questioned as to how many small coins of his country were equivalent in value to a large coin. For instance, Italians were asked, "How many soldi constitute a lire?" Russians were asked, "How many kopecks are equivalent to a ruble?" Ruthenians were questioned as to the number of kritzas that could be exchanged for a gulden.

From the following table it will be observed that at least 75 per cent of every group succeeded in giving the correct answer to this question:

TABLE 30.—*Results of Coin Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	12	12	100	10–11	4	3	75	Italian: Women	20	18	90
Hebrew, 9–11	25	25	100	12–14	8	7	87½	Slav:			
12–14	37	35	94½+	15–above	27	27	100	Men	10	10	100
15–above	99	98	99 —	Italian: Men	20	20	100	Women	30	25	83⅓

WEIGHTS.

The ability to discriminate weights was tested by placing 5 cubes of different weights on the examining table in front of the subject and getting him to arrange them in order of their weight. Two trials were allowed.

The cubes were made of wood, were a little more than 1 cubic inch in size, and contained different quantities of lead in their interior. Their weights were as follows: 12.3 grams, 16.8 grams, 22 grams, 24 grams, 38.2 grams.

The results were as follows:

TABLE 31.—*Results of Weights Test.*

Group.	Number examined.	Number successful.			Percentage successful.	Group.	Number examined.	Number successful.			Percentage successful.
		Trial 1.	Trial 2.	Total.				Trial 1.	Trial 2.	Total.	
Literates:						Illiterates—Con.					
9–11	12	12	.....	12	100	15, above	27	19	5	24	89 —
Hebrew, 9–11	25	19	6	25	100	Italian—					
12–14	37	28	7	35	94½+	Men	20	14	5	19	95
15–above	99	75	17	92	92½+	Women	20	15	1	16	80
Illiterates:						Slav—					
10–11	4	4	.....	4	100	Men	10	7	3	10	100
12–14	7	6	1	7	100	Women	29	21	5	26	89½+

It will be noticed that 75 per cent of the immigrants of every group succeeded in this test. Perhaps the most interesting result is that, of

41 immigrants under the age of 12, all succeeded. Above the age of 9 it would appear that the ability to arrange these weights is independent of age and formal schooling.

DIFFERENCE BETWEEN A HOUSE AND A STABLE.

Each immigrant was asked "What is the difference between a house and a stable?

If the essential idea that a house is for people and a stable is for animals or for certain kinds of animals was expressed or implied, the test was considered as having been satisfactorily passed.

Satisfactory replies by certain illiterates are here given exactly as translated by the interpreter:

Is the wall between. Stable is used for the donkey; house is used for the furniture, seats, trunks, and people. (Italian, age 16, male.)

House is where we live and have our kitchen; stable is where we have our animals. (Italian, age 18, male.)

House where we live and where there is furniture; in the stable the cattle eat and sleep. (Italian, age 18, male.)

House is to eat in and sleep in; stable is to put horses in. (Italian, age 21, male.)

There is a great difference; the stable is not like the house; (further pressed) house is to live in, stable is for beasts. (Italian, age 23, male.)

In the one people live; one is for the animals. (Italian, age 24, male.)

Much difference; stable all the domestic animals sleep. Human beings sleep in the house. (Italian, age 27, male.)

House is for persons and the stable smells bad (difficult to classify). (Italian, age 27, male.)

The difference in my house is the family lives upstairs, stable is underneath. (Difficult to classify.) (Italian, age 29, male.)

The following are some of the unsatisfactory replies made by illiterates:

You are here and the stable is out there. (Italian, age 16, male.)

House is bigger and finer than the stable. (Italian, age 19, male.)

The neatness, the cleanliness. (Italian, age 25, female.)

To have rooms, for stabling. (Italian, age 25, female.)

House is to sleep in, and the stable is where we throw the filth. (Italian, age 25, female.)

House has a floor, stable has not. (Russian Ruthenian, age 22, male.)

In home there are chimney, stove, and windows, there are none in the stable. (Russian Pole, age 28, male.)

Same building, house is better looking, stable is not good looking. (Austrian Ruthenian, age 16, female.)

House is being blessed, stable is not. (Russian, age 20, female.)

In the house we are living. (Russian, age 20, female.)

House has windows, stable has none. (Russian, age 27, female.)

Stable is dirty, house is clean. (Spaniard, age 18 male.)

House is where you live, table is in the house. (Roman, age 25, female.)

The wall is between the house and the stable. (Spaniard, age 27, male.)

House is clean, stable is full of dirt. (Spaniard, age 42, male.)

House has a roof, stable has not. (Russian Hebrew, age 10, female.)

Stable is dirtier, no other difference. (Italian, age 12, male.)

TABLE 32.—*Results of test regarding difference between house and stable.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	12	10	83⅓	10–11	4	3	75	Italian: Women	20	17	85
Hebrew 9–11	24	22	91⅔	12–14	8	7	87½	Slav:			
12–14	37	32	86½	15–above	27	23	85+	Men	10	8	80
15–above	99	84	84½	Italian: Men	20	18	90	Women	30	26	86⅔

CHRISTMAS OR PEYSACH.

The question "What is Christmas?" or in the case of Hebrews "What is Peysach?" was put to each individual. Replies embodying the ideas "birth of Christ" or "the deliverance of the Jews from Egyptian slavery" were considered correct.

Many immigrants responded by saying "I don't know." Of other incorrect replies, the following are given to show how some average or normal immigrants responded to the question:

What is Christmas?

Illiterates:

Italian (male, age 13): After Christmas comes summer.
Italian (male, age 14): Grand feast all over the world.
Spanish (male, age 16): Holiday, souls are then on a journey.
Spanish (male, age 16): Feast of Christmas.
Russian Hebrew (female, age 17): Holiday once a year.
Spanish (male, age 18): They have a great feast.
Spanish (male, age 27): It is a great feast when we eat well for 3 or 4 days.
Spanish (male, age 31): Last month in the year.
Spanish (male, age 31): When Christ arose.
Spanish (male, age 32): That is when we eat and drink well.
Spanish (male, age 39): Feast of holiday.
Spanish (male, age 42): It is in remembrance at the end of the year, great feast.
Italian (male, age 16): A grand feast.
Italian (male, age, 16): Feast of Jesus, when relatives reunite.
Italian (male, age 18): Feast.
Italian (male, age 19): Holiday, eat more than on other days.
Italian (male, age 20): A feast in which a variety of sweet things are made.
Italian (male, age 21): A feast which you call Christmas.
Italian (male, age 23): Great holiday.
Italian (male, age 24): 25th of December.
Italian (male, age 24): Feast of Our Lord, Jesus.
Italian (male, age 30): Holiday.
Italian (male, age 30): Child was born.
Italian (female, age 16): Make a great feast.
Italian (female, age 19): Good feast.
Italian (female, age 20): It is a great feast in which we eat, drink, and are happy.
Italian (female, age 24): Grand feast.
Italian (female, age 25): Great holiday.
Austria Ruthenian (male, age 16): They bless the waters then.

Illiterates—Continued.

Russian (male, age 18): It is a great holiday.
Russian Pole (male, age 20): Have to go to church and pray.
Russian Ruthenian (male, age 22): Certain religious services.
Austria Ruthenian (male, age 24): Jesus was tortured.
Russian Pole (female, age 17): A holiday for the whole year.
Russian (female, age 17): Great holiday, bless the food.
Russian (female, age 18): Christ suffered.
Austria Ruthenian (female, age 18): Christening of Christ.
Russian (female, age 20): Ascension of Christ.
Russian (female, age 20): A great holiday.
Austria Ruthenian (female, age 20): Christ has risen.
Austria Ruthenian (female, age 23): Christ's supper.

What is Peysach (substituted for Hebrews)?

Literates:

Russian Hebrew (male, age 9): Because the Jews in Egypt had a hard time and did not eat the right bread.
Russian Hebrew (male, age 10): We left Egypt then.
Russian Hebrew (male, age 10): Not allowed to eat bread.
Russian Hebrew (female, age 10): We go to the synagogue and eat matzoth.
Russian Hebrew (female, age 10): Jews have been in Egypt and ate unleaven bread.
Rusian Hebrew (female, age 10): Because we are Jews.
Russian Hebrew (female, age 10): Making biscuits.
Russian Hebrew (male, age 11): When the Jews escaped from Egypt they took dough and baked it without waiting for it to ferment.
Russian Hebrew (female, age 11): Jews ate in Egypt unleaven bread.

The following table shows the low percentage of correct responses in each group:

TABLE 33.—*Results of Christmas or Peysach Test.*

Literates.				Illiterates.							
Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.	Group.	Number examined.	Number successful.	Percentage successful.
9–11	12	8	66⅔	10–11	4	1	25	Italian: Women	20	13	65
Hebrew 9–11	25	10	40	12–14	8	2	25	Slav:			
12–14	37	25	67½+	15–above	26	8	30½+	Men	10	4	40
15–above	97	67	69+	Italian: Men	20	11	55	Women	30	17	56⅔

The above table shows that no group succeeded in this test.

The illiterates performed the test almost as satisfactorily as the literates. The ability to express ideas in suitable words has much to do with success in a test of this kind, and it would seem that the small amount of schooling which the literates have generally received is of little benefit to them in expressing their ideas. In some instances the replies will show what is uppermost in the subject's mind as well as his small amount of experience. Many of the responses bring out the observation power and conceptual power of untrained immigrants.

TESTS IN REASONING (NONARITHMETICAL).

GEOGRAPHIC PUZZLE.

The Geographic Puzzle, evolved at Ellis Island several years ago from a series of similar cardboard puzzles, is one of the first puzzle tests used in connection with the mental examination of arriving immigrants. It is typical of a large class of puzzles. The Geographic is a simple jig-saw puzzle,[1] and in its united form is $6\frac{3}{4}$ inches long, $4\frac{3}{4}$ inches wide, and about $\frac{3}{8}$-inch thick. (The exact dimensions are unimportant.)

This puzzle consists of a body or central part irregularly indented by 6 eccentric clefts, and 6 pieces, each having 1 or 2 straight margins and an eccentric curved margin. The 6 pieces fit into the 6 clefts of the body, so that when all 7 parts are together a rectangular figure is formed. Figures 40–42 show the shape, arrangement, and relative size of the pieces.

METHOD OF TESTING.

The body of the Geographic Puzzle was placed on the examination table in front of the immigrant, with its lower border near him. The 6 pieces were placed together at the right of the puzzle, 3 pieces resting on their anterior polished surfaces and 3 on their posterior rough surfaces. The experimenter told the subject to watch closely while he slowly took piece 1 from the pile and placed it in its proper position, that is, in the cleft of the lower border. The experimenter likewise placed pieces 2 and 3 in their proper clefts. (Fig. 42.)

After permitting the alien to observe the half-completed puzzle for three or four seconds, the puzzle was disarranged and put aside. The subject's attention was then taken from this puzzle by using the counting-dot experiment. (See 44.) Immediately after the immigrant had counted the dots, the Geographic Puzzle was again placed in front of him, this time in a reversed position, so that cleft 4 was near the alien. The pieces were placed indiscriminately, three resting on their anterior surfaces and three on their posterior surfaces.

The alien was instructed to place the pieces in their proper clefts. Time was taken with stop watch from the second the subject touched the first piece until the puzzle was successfully completed, and all false moves made by the subject were carefully counted. Inability to complete this puzzle in five minutes (300 seconds) was considered a failure. If the subject approached a certain cleft with the wrong piece, then remained still, reflected, and returned the piece to the pile, he was not credited with a false move. It would be considered a false move only when the piece actually entered the cleft. A piece

[1] This and similar puzzles can be made by scroll saw out of maple, ash, or other woods.

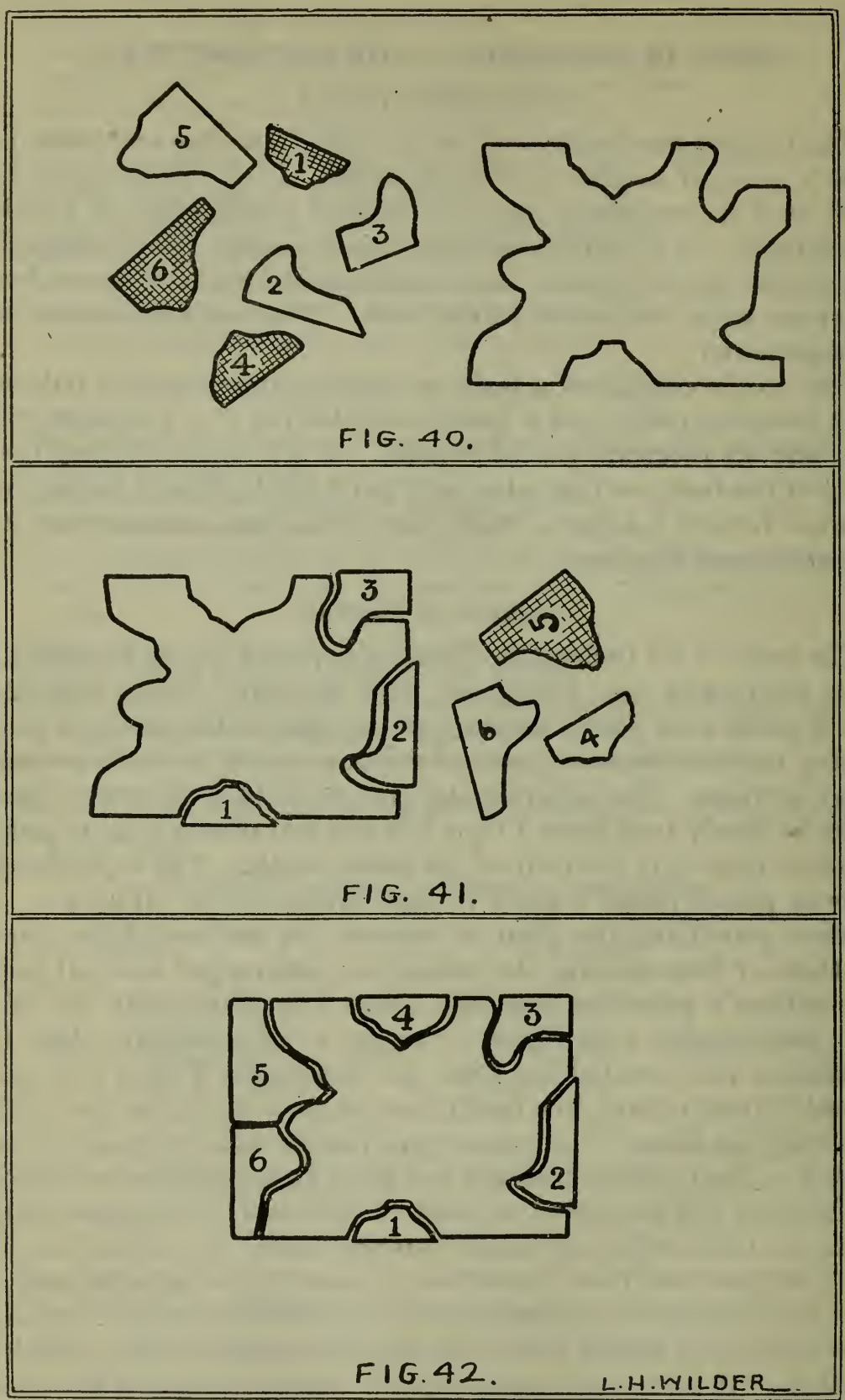

FIG. 40.—Geographic puzzle, as presented to immigrant for solution.

FIG. 41.—Geographic puzzle with first three pieces in their proper clefts. Immigrant was shown puzzle in this form before he commenced to solve it, after which it was disarranged.

FIG. 42.—Geographic puzzle, with pieces in their proper clefts.

(Lined pieces are wrong side up.)

placed in its proper cleft on its posterior or rough surface instead of on its anterior polished surface was recorded as a false move.

In exceptional cases, when the puzzle was almost completed in 300 seconds, the alien was permitted to finish it, the few additional seconds being also recorded, though the performance was scored as a failure. If the immigrant failed in 300 seconds or in this additional time, the puzzle was then disarranged, the alien was told to watch carefully while the examiner took each piece from the pile and slowly placed it in its proper cleft in the body of the puzzle.

As soon as the subject had succeeded in working the puzzle, or, in the event of failure, as soon as the examiner had shown him how to do it, the puzzle was immediately disarranged. It was then placed before him exactly as it was presented to him at trial 1, in order to ascertain what improvement a second trial would show.

RESULTS.

The following tables give the detailed results in the case of certain of the groups:

TABLE 34.—*Results of Geographic Test in the case of literate 15 and above group.*

Men (51 examined).							Women (49 examined).						
Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.	Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.
	Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.				Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.		
1	167	16	100	7	....	....	1	145	15	45	5	....	....
2	26	0	25	0	....	....	2	68	2	30	0	....	....
3	45	5	22	0	....	....	3	140	2	116	2	....	....
4	48	4	33	4	....	....	4	27	2	35	4	×	×
5	75	1	40	0	....	....	5	89	7	40	3	....	....
6	65	1	38	0	....	....	6	42	2	39	2	....	....
7	130	13	37	3	....	....	7	[1] Failed.	29	66	7	....	....
8	54	1	35	0	....	....	8	124	10	32	1	....	....
9	39	0	49	0	×	....	9	105	17	30	2	....	....
10	58	3	49	4	....	×	10	76	3	20	1	....	....
11	117	12	75	5	....	....	11	78	7	21	2	....	....
12	106	3	47	2	....	....	12	75	3	20	1	....	....
13	32	0	94	1	×	×	13	87	10	35	2	....	....
14	63	2	69	6	×	×	14	100	7	46	2	....	....
15	42	6	22	0	....	....	15	27	3	15	0	....	....
16	190	14	29	2	....	....	16	109	10	28	1	....	....
17	78	6	43	0	....	....	17	166	14	56	4	....	....
18	80	6	31	2	....	....	18	72	9	26	2	....	....
19	54	1	23	1	....	....	19	32	3	22	3	....	....
20	29	1	48	4	×	×	20	44	4	43	5	....	×
21	62	5	39	4	....	....	21	53	4	27	2	....	....
22	75	5	23	0	....	....	22	[2] Failed.	35	29	3	....	....
23	74	6	37	3	....	....	23	30	0	24	1	....	×
24	160	10	119	8	....	....	24	24	0	35	3	×	×
25	45	3	23	1	....	....	25	48	2	117	11	×	×
26	48	8	36	7	....	....	26	167	15	126	10	....	....
27	35	1	30	1	....	....	27	37	3	24	2	....	....
28	54	1	50	4	....	×	28	85	7	39	4	....	....
29	106	4	30	0	....	....	29	102	7	34	2	....	....
30	[3] Failed.	35	77	17	....	....	30	91	9	35	1	....	....

[1] Succeeded after 393 seconds.
[2] Succeeded after 303 seconds.
[3] Those who failed at first trial were shown how to put puzzle together before second trial.

TABLE 34.—*Results of Geographic Test in the case of literate 15 and above group—Con.*

Men (51 examined).							Women (49 examined).						
Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.	Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.
	Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.				Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.		
31	59	7	22	1	....	....	31	241	16	37	4	....	....
32	50	6	49	6	....	....	32	45	3	38	3	....	....
33	107	9	75	12	....	×	33	37	0	40	0	×	....
34	77	7	67	4	....	....	34	202	20	108	16	....	....
35	70	9	37	3	....	....	35	41	1	24	0	....	....
36	122	4	106	3	....	....	36	71	7	19	0	....	....
37	37	3	20	0	....	....	37	64	8	20	1	....	....
38	92	3	49	4	....	×	38	35	5	25	1	....	....
39	105	13	52	4	....	....	39	50	7	20	2	....	....
40	62	3	16	0	....	....	40	82	10	163	0	×	×
41	107	2	50	0	....	....	41	187	23	55	7	....	....
42	137	13	50	3	....	....	42	30	1	25	1	....	....
43	40	5	25	1	....	....	43	173	9	22	0	....	....
44	162	18	38	3	....	....	44	82	3	66	5	....	....
45	157	11	154	9	....	....	45	53	7	22	2	....	....
46	79	10	25	0	....	....	46	38	3	23	0	....	....
47	37	2	19	2	....	....	47	38	1	46	4	×	×
48	30	7	15	0	....	....	48	202	22	35	3	....	....
49	55	4	277	23	×	×	49	252	11	52	3	....	....
50	40	0	25	0	....	....							
51	117	15	82	6	....	....							

TABLE 35.—*Results of Geographic Test in the case of Italian illiterate group.*

Men (20 examined).							Women (20 examined).						
Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.	Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.
	Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.				Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.		
1	175	10	35	3	....	....	1	163	13	22	2	....	....
2	67	.....	30	.....	....	....	2	125	6	96	5	....	....
3	200	20	27	.....	....	....	3	Failed.	20	160	9	....	....
4	38	2	26	2	....	....	4	132	10	200	17	×	×
5	119	9	190	23	×	×	5	Failed.	34	46	5	....	....
6	Failed.	33	34	2	....	....	6	94	13	Failed	37	....	....
7	105	9	18	.....	....	....	7	188	2	119	2	×	....
8	130	21	45	7	....	....	8	100	13	132	26	×	×
9	184	19	50	3	....	....	9	108	8	43	6	....	....
10	42	4	20	2	....	....	10	56	8	55	13	....	×
11	27	1	40	4	×	×	11	65	11	50	7	....	....
12	109	1	35	1	....	....	12	35	5	37	2	×	....
13	64	7	27	2	....	....	13	247	32	74	11	....	....
14	95	8	45	2	....	....	14	236	17	40	3	....	....
15	163	18	55	3	....	....	15	Failed.	30	45	5	....	....
16	124	12	26	3	....	....	16	152	21	116	16	....	....
17	45	5	26	3	....	....	17	105	15	58	7	....	....
18	75	5	57	3	....	....	18	74	3	29	.....	....	....
19	Failed.	54	50	7	....	....	19	49	1	98	11	×	×
20	69	9	15	.....	....	....	20	59	4	39	3	....	....

TABLE 36.—*Results of Geographic Test in the case of Slav illiterate group.*

Men (10 examined).							Women (30 examined).						
Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.	Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.
	Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.				Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.		
1	44	1	24	.....	....	....	1	77	9	23	2	....	....
2	49	3	34	.....	....	....	2	174	10	26	1	....	....
3	77	7	25	1	....	....	3	64	1	55	2	....	×
4	68	3	30	.....	....	....	4	71	9	67	11	....	×
5	149	8	72	5	....	....	5	172	21	34	6	....	....
6	132	6	21	.....	....	....	6	68	6	53	8	....	×
7	128	8	106	7	....	....	7	179	18	75	7	....	....
8	51	5	25	1	....	....	8	40	2	34	2	....	....
9	56	5	40	2	....	....	9	59	6	54	5	....	....
10	30	1	35	1	×	....	10	163	19	35	3	....	....
							11	44	4	19	1	....	....
							12	108	10	37	1	....	....
							13	184	12	53	1	....	....
							14	58	5	26	3	....	....
							15	58	5	48	4	....	....
							16	59	3	34	3	....	....
							17	82	6	26	2	....	....
							18	59	6	26	2	....	....
							19	34	.....	51	1	×	×
							20	50	3	66	5	×	×
							21	94	11	48	4	....	....
							22	77	7	43	1	....	....
							23	102	14	76	12	....	....
							24	51	3	36	2	....	....
							25	163	4	59	3	....	....
							26	84	10	24	.....	....	....
							27	55	8	53	7	....	....
							28	115	8	47	4	....	....
							29	106	10	39	2	....	....
							30	85	15	84	13	....	....

SUMMARY OF RESULTS.

In the 4 literate groups 174 immigrants were examined, 169, or 97+ per cent, of whom succeeded within 300 seconds at the first trial. The time ranged in all of these successful cases from 23 to 260 seconds. The average time for the literate groups combined was 86 seconds. The best average time (74 seconds) was made by the boys of the *literate 12–14* group; the slowest average time (97 seconds) was made by the *Hebrew literate 9–11 group.*

In the 5 illiterate groups 120 immigrants were examined, 112, or 93⅓ per cent, of whom succeeded within 300 seconds at the first trial. The time ranged from 27 to 272 seconds. The average time for the combined illiterate groups was 102½ seconds. The best average time (78 seconds) was made by the 10 men of *Slav illiterate* group. The slowest average time (127 seconds) was that of the 7 members of the *illiterate 12–14* group.

At the first trial the average number of false moves for the 4 literate groups was 7, the men of the *literate 15 and above* group

making the smallest average (6). The *Hebrew literate 9–11* group made an average of 8.

The average number of false moves for the 5 illiterate groups was $8\frac{1}{2}$, the smallest number (5) being made by the 10 men of the *Slav illiterate* group and the largest number (12) being made, as would naturally be expected, by the *illiterate 10–11* group.

In the second trial all the literates succeeded. One hundred and sixty-eight of them (those who succeeded at trial 1) succeeded in an average time of 45 seconds, the best average time (43 seconds) being made by the 49 women of literate 15 and above group, the slowest average time (51 seconds) by the men of the same group.

In the second trial of the illiterate groups all but one alien succeeded. An Italian woman who succeeded at trial 1 failed at trial 2. One hundred and eleven illiterates succeeded in an average time of 52 seconds, the fastest average time (41 seconds) being made by the 10 men of the *Slav illiterate* group. The slowest average time (76 seconds) was made by the 16 women of the *Italian illiterate* group.

The average number of false moves at the second trial in the case of the literate groups was $3\frac{1}{6}$, each group averaging 3 false moves, except the 19 girls of the *literates 12–14* group, who averaged 4 false moves.

The average number of false moves at the second trial in the case of the 5 illiterate groups amounted to $4\frac{1}{2}$, the largest average number of false moves (8) was made by the 16 women of the *Italian illiterate* group; the smallest average number of false moves (2) was made by the 10 men of the *Slav illiterate* group.

Among the literates the *literate 12–14* group excelled the *literate 15 and above* group in quickness of performance in trial 1. At trial 2 the boys of the *literate 12–14* group excelled the men of the *literate 15 and above* group, while the reverse was true in the case of the girls and women, respectively, of the two groups.

Among the illiterates the *illiterate 10–11* and *illiterate 12–14* groups record the slowest average time in performing the test at trial 1. There is little difference in the performance time of the other groups with the exception of the Italian women, who average a little longer time at the first trial. At trial 2 there is little difference in the average performance time of the different groups—the *Slav illiterate* group making the fastest average time; the women of the *Italian illiterate* group making the slowest time. There is practically no difference in the average number of false moves made by the different literate groups. Among the illiterates the average number of false moves in the *illiterate 10–11* and the women of the *Italian illiterate* groups are largest for trial 1. At trial 2 the women of the *illiterate 15 and above* and *Italian illiterate* groups made the largest average number of false moves. The men of the *Italian illiterate* and the

Slav illiterate groups made the smallest average number of false moves. There was little difference in the number of false moves made by the other groups at trial 2.

In general, among the literate groups the boys and men excelled the girls and women in quickness of performance at trial 1. The boys of the *literate 12–14* group excelled the girls, while the women of the *literate 15 and above* group excelled the men in quickness of performance at trial 2.

In the illiterate groups the average performance time for both trials is faster in the case of the men than in that of the women.

CONCLUSIONS.

As a result of these tests, it may be concluded that:

(1) Seventy-five per cent of the members of each group having successfully performed the Geographic Test, it is therefore not too difficult a test for arriving immigrants above the age of 9.

(2) In the second trial the Geographic and similar tests are performed by arriving immigrants in less time and with a smaller number of false moves than in the first trial.[1]

(3) As a rule, the literate groups succeed in performing the puzzle in quicker time and with fewer false moves than do the illiterate groups.

(4) However, many illiterate immigrants and certain literate groups excel some of the literates.

(5) Generally speaking, above the age of 9 there is no age difference in the performance of this test among literates.

(6) The younger illiterates require a little longer time and make more false moves than the older ones, but even here there is no marked difference in accomplishment.

(7) Among the literate groups the men and boys do slightly better than the girls and women in the performance of the Geographic Test.

(8) Among the illiterates this difference of performance between the two sexes is more marked.

DISCUSSION.

Points of interest in connection with the solution of the Geographic Puzzle are applicable to all form-board puzzles—that is, to those puzzles where small sections fit into recesses in a larger body. This sort of puzzle, however, is somewhat different from the Healy Frame and other puzzles, the successful performance of the latter depending upon a definite construction according to an abstract principle.

In any problem presented for solution there must be present two elements—the known and the unknown. If all elements of a prob-

[1] In both the literate and illiterate groups at trial 2, the average time in solving the Geographic Puzzle and the average number of false moves are approximately one-half what they were at trial 1.

lem are unknown to the subject, the problem can not be solved by him. Some subjects will be able to accomplish a great deal with only a partial knowledge of one or two elements—that is, they will be able to solve a problem if only an inkling or slight familiarity with some of its parts has been previously obtained. Others will require knowledge of many elements before they can enter into the problem and solve it. The variation here indicated in problem solving is simply a variation in reasoning ability.

Although many immigrants had seen puzzles or mechanical contrivances somewhat similar to the Geographic Puzzle, some immigrants, especially the illiterate from rural regions, had never before seen anything like the Geographic Puzzle and others had no previous experience which could be transferred for the purpose of solving this puzzle. It was for this reason that the definite principle of the test was shown to the subject (by placing 3 pieces in position).

In attempting to solve this puzzle the tranquil immigrant with reasoning ability would carefully scrutinize the body of the puzzle with its various shaped clefts and the six different pieces in the pile. He would note that some of the pieces rested on their posterior rough surfaces and others on their anterior smooth surfaces. He would first arrange the two small pyramidal shaped pieces 1 and 4, as their position in the body was most obvious. Then pieces 2 and 3, a little more complicated, but each having its own definite cleft, would be placed. This process of elimination would leave pieces 5 and 6 for final adjustment. The clefts receiving these two pieces coalesce, and therefore the exact positions of pieces 5 and 6 are not so obvious. Perhaps the subject would have to make close and repeated observations of the two remaining pieces and coalescing clefts in order to unravel the difficulty.

This reasoning method was employed by a number of immigrants, and is usually found when the performance time is short and false moves few. Occasionally when the reasoning method was used, a long time was required; but even in these cases the number of false moves were few.

Often, for a brief period normal immigrants used subnormal methods. It is only where the immigrant persists in subnormal methods in trial after trial and test after test that he can be considered subnormal. The animal method (picking up the small pieces at random and attempting to place them without thinking of the similarity between cleft and piece) was used by the majority of immigrants at first. When this method was employed for the first 10 to 20 seconds only it was attributed to emotional disturbances or some other accidental cause. Many intelligent immigrants after attempting for 20 seconds or longer to place the pieces in this haphazard manner would begin to think (to see similarity). They

would then accurately arrange the puzzle piece by piece, completing it in short order. Other immigrants would employ the so-called animal method for 120 seconds or 180 seconds before settling down to purposive thinking.

It is believed that there is no psychological detail in the solving of this puzzle or in the performance of other tests that is too small to mention. Every action that is well done, every movement that shows a purpose, every reply that in any way indicates intelligence, and even the manner and facial expression of the subject should be carefully observed. It is only by paying strict attention to all these little details, by weighing them, and by inquiring into the whys and wherefores of unsatisfactory performances that a correct judgment as to the normality of an immigrant at the time of landing can be reached.

As said above, at the second trial the performance time and false moves were as a rule reduced. A frequent exception to this rule is where the first trial is done with speed and accuracy, in which case a comparatively poor showing may occur at trial 2. An "ambitious" attitude may be the cause of a comparatively poor showing. One alien who solved the test very quickly with no false moves, ambitious to outdo the previous performance, made an extremely poor showing at the second trial. A self-conscious attitude, a feeling that he is on trial, a feeling that disaster may result to him in the event of failure, and other attitudes are accountable for the poor showing that several normal aliens made.

Success is delayed in some cases owing to the immigrant assuming that a certain segment of the puzzle should go into a certain cleft regardless of whether the segment and cleft are similar in form. A Lithuanian girl strove hard and well to perform this test but was acting under a similar wrong assumption. After some preliminary maneuvering the pieces lay on the table with their rough surfaces uppermost. The girl temporarily assumed that they were to enter the clefts just as they were. It did not occur to her to turn them over. False assumptions like this have cost different subjects anywhere from 30 to 120 seconds.

In doing the second trial of the puzzle one immigrant placed the first 5 pieces in their proper places in 3 seconds, then became disturbed and spent 30 seconds in placing piece 6 in its proper cleft.

After taking a long time to work the puzzle and after making many false moves some immigrants do rapid and excellent work at the second trial. These cases profit by experience and this in itself is a sign of intelligence.

In performing this test one of the greatest causes for delay on the part of the immigrant is the selecting at the start of a large piece instead of one of the small pyramidal pieces. One immigrant

tenaciously held on to 1 segment, looking at it for a long time in a perplexed way. Others attempt to place 2 segments in the body of the puzzle at the same time. This usually results in delay.

Attempting to put a segment into an impossible cleft is not always a sign of mental defect, but occasionally occurs in a normal person when temporarily disturbed.

In extreme cases an immigrant may attempt the test as though all thought were paralyzed. He continues to put every piece in every cleft regardless of whether similarity between cleft and piece exists. Later he may wake up and solve the puzzle quickly, or this dazed mental condition may persist throughout the entire five minutes. Still he may be of normal intelligence, which is proven by his excellent correlations in other tests.

In these particular cases the immigrant's attention may be internally directed. It may be strongly riveted on some anticipation, disappointment, or other affair, and at such a time his intellectual field is not doing itself justice. This mental state is by no means uncommon in the normal immigrant at the time of arrival.

In some cases an immigrant will pick up 3 wrong segments in succession and endeavor to place them in a certain cleft, then he will pick up the right segment and instead of putting it in the cleft in question, will attempt to put it in another cleft.

A Russian (No. 21) d d the test in 32 seconds with no false moves. During the second trial he was distracted by the ringing of bells and he succeeded only after 94 seconds and after making a false move. A Spaniard (No. 4) did the test well on the first trial; then he became much disturbed. At the second trial he could not properly place a single segment. He exclaimed, "I am going to pieces on account of my trouble."

At times, when disturbed, an immigrant has removed a piece after it had been properly placed in the body of the puzzle.

In the performance of this and other tests the attention may wander. The subject may look out of the window, stare at some object in the room, or assume a perplexed look. A feeling of uncertainty as to what it all means, fatigue, disappointment at not immediately being landed are accountable, singly or severally, in different cases for such behavior.

Better results can always be obtained in working this and similar puzzles if a large table upon which the subject can rest his arms is used.

Many failures in this as well as in other puzzle tests are undoubtedly due to defective vision. In order to perform this test successfully, as well as the Relationship Test (see p. 102), a broad visual field is necessary so as to take in at a glance the body of the puzzle with its

clefts as well as the pile containing the variously shaped pieces. Two intelligent immigrants with an extremely narrow visual field had much difficulty in doing the test. They could see only one cleft at a time, and then shifting their gaze to the pile, could see only one piece at a time. In attempting to perform this test they had to shift a piece from cleft to cleft, each time closely observing the particular cleft. These same two aliens performed the Healy Frame Test (see below) with ease. It may be well to reiterate that occasionally all sorts of abnormal symptoms are encountered within the range of normality. On account of their learning ability the normals show much improvement in doing this test at the second trial.

The immigrants who have made a poor showing at both trials in this particular experiment have retrieved themselves in the successful performance of other tests, both concrete and abstract. It must be distinctly remembered that this discussion is limited to a single examination for a given individual. Many peculiarities here noted would probably not occur at a second examination on the following day.

HEALY'S CONSTRUCTION TEST A.

The Healy Frame Test devised by Dr. William Healy, of Chicago, has been extensively used at immigration stations in the mental examinations of aliens for the past two and one-half years. The test is a construction problem and consists in arranging 5 small pieces so as to fill completely the interior of a frame. As used in this experiment the part of the test within the frame measures 4 inches long and 3 inches wide, the recess which received the 5 pieces and consequently the pieces themselves being less than one-fourth of an inch thick. It is important that the individual pieces should be less than one-fourth of an inch in thickness, because in testing immigrants it has been found that the thicker the individual pieces the more difficult is the task of performing this test. It is important that piece 1 (see fig. 43) should be distinctly broader than any other piece. In the present test piece 2 was a little broader than piece 3, and pieces 4 and 5 were of the same dimensions, each being a trifle broader than piece 2.

The illustrations (figs. 43–45) show the test as presented, as completed, and a type of error.

METHOD OF TESTING.

The Healy Frame Test in its completed form was passed quickly in front of the immigrant's gaze, in order to show him that all of the pieces fitted into the frame; but the exposure was so short that the position of the different pieces could not be memorized. The small pieces were next emptied on the examining table, the empty frame

was placed in front of the subject, the pieces were mixed, and the interpreter told the subject to place all the pieces within the frame so as to cover completely the area within the frame.

Time was taken with stop watch from the second the alien touched one of the small pieces. The false moves or the placing of pieces in faulty positions were recorded. A faulty position would be a position

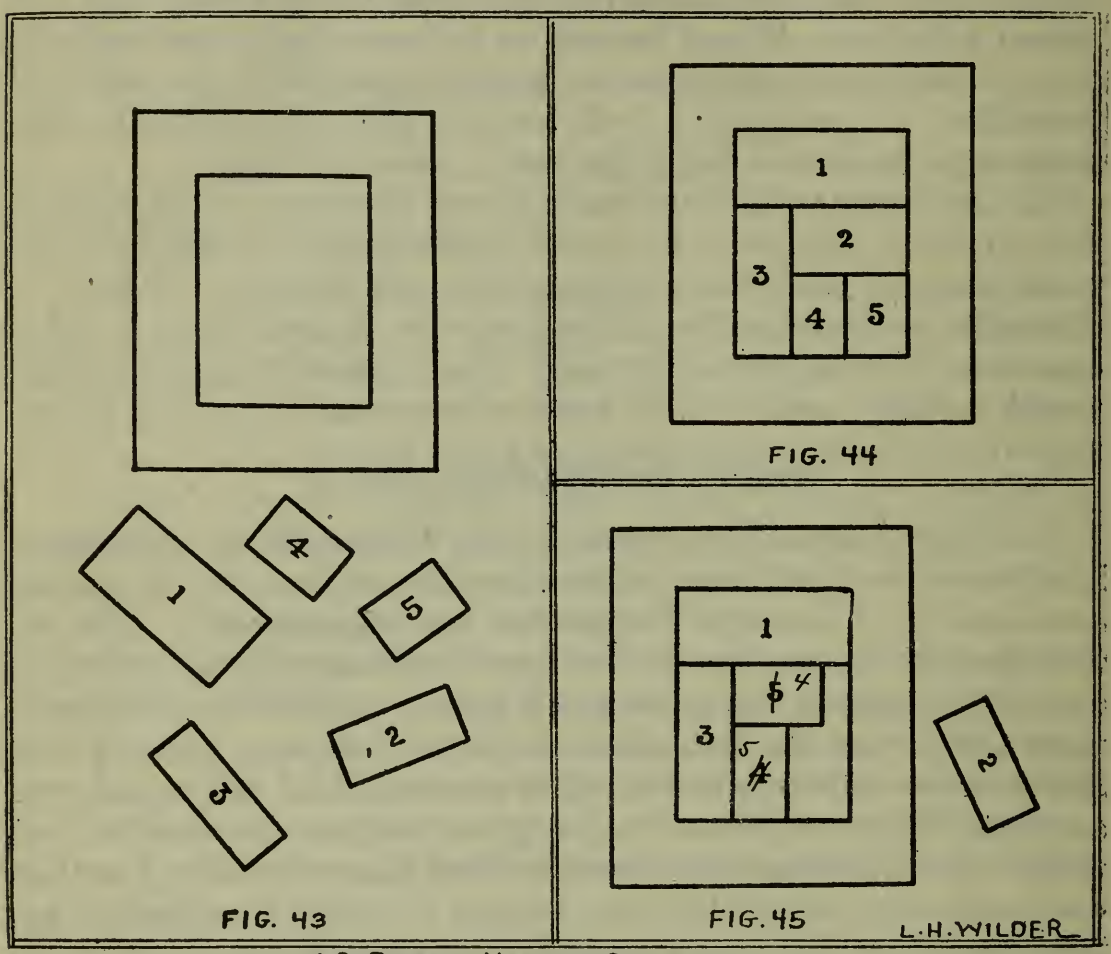

FIG. 43.—Healy Frame Test, as presented to immigrant for solution.

FIG. 44.—Healy Frame Test as solved.

FIG. 45.—A type of error in attempt to solve Healy Frame Test.

assumed by any piece which would prevent the solution of the test or which could be considered relatively false.[1] As in the Geographic Puzzle, if the test was not performed in 300 seconds, it was recorded as a failure and the immigrant was shown how to execute the test. A second trial was given each immigrant, whether or not he had succeeded at the first trial.

[1] See p. — for explanation of "relatively false."

RESULTS.

The results in certain groups are given below:

TABLE 37.—*Results of Healy Test in the case of literate 15 and above group.*

Men (51 examined).							Women (49 examined).					
Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.	Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.
	Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.				Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.		
1	245	14	105	5			1	Failed.	35	50	5		
2	93	17	18	0			2	156	14	150	15		
3	96	13	30	0			3	110	3	17	0		
4	27	2	15	0			4	130	14	15	1		
5	167	16	17	0			5	70	8	15	0		
6	16	1	12	1			6	136	15	14	1		
7	Failed.	[1] 30	38	3			7	Failed.	38	20	2		
8	26	0	12	1		×	8	153	15	37	4		
9	27	3	14	0			9	50	10	22	3		
10	110	11	20	0			10	70	6	11	0		
11	17	1	7	0			11	18	2	12	1		
12	33	2	22	0			12	47	7	43	2		
13	211	12	26	0			13	135	15	11	0		
14	110	11	36	3			14	Failed.	28	266	20		
15	41	6	16	1			15	9	0	10	0	×	
16	28	0	11	0			16	Failed.	[1] 41	9	0		
17	26	2	11	0			17	140	12	166	15	×	×
18	40	3	14	0			18	Failed.	46	16	3		
19	113	10	16	1			19	159	20	55	7		
20	32	3	12	0			20	288	33	13	1		
21	35	4	17	1			21	25	2	13	0		
22	64	6	8	0			22	71	8	25	0		
23	105	11	29	1			23	136	15	13	1		
24	29	5	8	0			24	80	5	17	0		
25	30	1	12	0			25	207	19	43	3		
26	20	3	6	0			26	80	7	15	0		
27	10	0	8	0			27	104	16	8	0		
28	53	4	17	0			28	125	10	19	2		
29	70	7	43	1			29	Failed.	26	15	1		
30	50	6	27	1			30	37	4	62	2	×	
31	Failed.	[1] 31	26	2			31	251	19	22	1		
32	Failed.	[1] 35	13	1			32	11	0	19	2	×	×
33	40	6	16	1			33	85	8	35	2		
34	71	7	67	7			34	210	19	102	5		
35	128	17	10	0			35	156	19	16	0		
36	26	2	51	2	×		36	9	0	9	0		
37	17	2	14	1			37	Failed.	[2] 27	15	0		
38	149	13	15	0			38	27	2	14	1		
39	78	10	12	0			39	62	10	33	2		
40	36	5	22	4			40	60	8	12	0		
41	16	0	14	0			41	82	8	86	9	×	×
42	22	1	38	4			42	115	11	19	1		
43	12	1	55	4	×	×	43	176	12	9	0		
44	46	5	16	1	×	×	44	98	11	8	0		
45	108	10	12	0			45	82	14	45	4		
46	30	3	24	3			46	103	9	23	2		
47	35	2	10	0			47	39	5	13	0		
48	Failed.	[1] 26	105	8			48	100	16	11	0		
49	55	4	25	1			49	61	6	17	0		
50	38	1	22	1									
51	56	4	32	4									

[1] Succeeded after 320 seconds. [2] Succeeded after 316 seconds.

TABLE 38.—*Results of Healy Test in the case of Italian illiterate group.*

Men (20 examined).							Women (20 examined).					
Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.	Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.
	Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.				Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.		
1	Failed.	26	60	20	....	....	1	108	10	9	0	....	....
2	245	18	54	2	....	....	2	Failed.	14	59	2	....	....
3	35	1	26	0	....	....	3	93	7	25	0	....	....
4	13	1	11	0	....	....	4	110	6	17	0	....	....
5	Failed.	26	32	2	....	....	5	78	8	28	4	....	....
6	235	30	17	2	....	....	6	Failed.	24	95	....	....	....
7	27	1	16	1	....	....	7	45	0	20	0	....	....
8	41	4	Failed.	33	....	....	8	Failed.	23	20	2	....	....
9	209	13	12	1	....	....	9	156	15	50	6	....	....
10	24	3	10	0	....	....	10	42	8	19	0	....	....
11	74	11	12	0	....	....	11	71	8	19	1	....	....
12	121	7	17	0	....	....	12	130	18	13	0	....	....
13	40	3	55	5	×	×	13	Failed.	35	Failed.	....	....	....
14	27	4	9	0	....	....	14	50	6	21	2	....	....
15	85	8	19	0	....	....	15	41	5	9	0	....	....
16	Failed.	[1] 12	12	0	....	....	16	25	3	19	2	....	....
17	58	8	9	1	....	....	17	55	7	64	5	....	....
18	30	2	12	0	....	....	18	243	16	23	0	....	....
19	14	1	17	0	×	....	19	195	10	26	0	....	....
20	23	1	21	1	....	....	20	113	8	12	1	....	....

[1] Succeeded after 316 seconds.

TABLE 39.—*Results of Healy Test in the case of Slav illiterate group.*

Men (10 examined).							Women (30 examined).						
Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.	Alien's number in group.	Trial No. 1.		Trial No. 2.		Aliens taking more time at second than at first trial.	Aliens making more false moves at second than at first trial.
	Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.				Number of seconds required.	Number of false movements made.	Number of seconds required.	Number of false movements made.		
1	40	5	16	0	....	....	1	24	1	10	0	....	....
2	160	15	19	1	....	....	2	209	12	89	8	....	....
3	30	2	15	1	....	....	3	Failed.	[2] 32	59	5	....	....
4	36	3	15	0	....	....	4	83	11	13	0	....	....
5	195	16	21	0	....	....	5	232	20	76	5	....	....
6	184	18	14	0	....	....	6	30	3	25	0	....	....
7	Failed.	37	26	2	....	....	7	109	12	20	1	....	....
8	Failed.	[1] 24	14	1	....	....	8	221	27	12	0	....	....
9	107	14	40	6	....	....	9	143	18	15	0	....	....
10	18	2	97	8	×	×	10	Failed.	25	21	0	....	....
							11	259	32	11	0	....	....
							12	Failed.	22	45	2	....	....
							13	Failed.	27	30	2	....	....
							14	Failed.	[3] 27	17	0	....	....
							15	98	11	50	4	....	....
							16	210	25	124	11	....	....
							17	53	8	60	13	×	×
							18	Failed.	25	12	0	....	....
							19	70	7	24	2	....	....
							20	41	2	18	0	....	....
							21	19	1	14	0	....	....
							22	104	9	150	12	×	....
							23	67	8	12	0	....	....
							24	59	2	12	0	....	....
							25	14	1	37	3	×	×
							26	55	7	13	0	....	....
							27	26	3	14	1	....	....
							28	9	0	9	0	....	....
							29	109	9	15	1	....	....
							30	25	3	9	0	....	....

[1] Succeeded after 305 seconds. [2] Succeeded after 300+ seconds. [3] Succeeded after 330 seconds

SUMMARY OF RESULTS.

One hundred and forty-five out of 174 literate immigrants (83 + per cent) succeeded in solving this test within 300 seconds at the first trial. Seventy-five per cent of every group succeeded in doing this test at trial 1 with the exception of the girls of the *literate 12–14* group, only 58 – per cent of their number succeeding. The time ranged in these successful cases from 9 seconds to 288 seconds. The average time for the performance at the first trial was 94 seconds. The shortest average time (75 seconds) was made by the 10 children of the *literate 9–11* group, the longest average time (112 seconds) by the 11 girls of the *literate 12–14* group. The men and boys of the *literate 15 and above* and *literate 12–14* groups made better average time than the women and girls of the same groups.

The average number of false moves at the first trial for all the literate groups combined were 10. The smallest average number of false moves at this trial (6) was made by the men of the *literate 15 and above* group. The largest average number of false moves 13 were made by the 14 boys of the *literate 12–14* group. There is little difference in the number of false moves as regards sex. It is interesting to note that the 10 children of the *literate 9–11* group averaged only 8 false moves.

At the second trial 144 out of 145 literate immigrants succeeded. One girl of the *literate 12–14* group failed. The time ranged in the successful cases from 7 seconds to 200 seconds. The average performance time at the second trial in 144 cases was 23 seconds. The shortest average time (15 seconds) was made by the 10 children of the *literate 9–11* group, the longest average time (31 seconds) was made by the women of the *literate 15 and above* group. At trial 2 the men of the *literate 15 and above* group made better average time than the women, and the girls of the *literate 12–14* group made better average time than the boys of the same group.

The average number of false moves at the second trial for the literate groups was $1\frac{1}{3}$, the largest number (3) being made by the boys of the *literate 12–14* group, the smallest average number of false moves ($\frac{2}{5}$) being made by the 10 children of the *literate 9–11* group.

Ninety-seven out of 119 illiterate immigrants ($81\frac{1}{2}$ per cent) succeeded in solving the Healy Frame Test within 300 seconds at the first trial. Seventy-five per cent of every group succeeded in doing this test at trial 1 with the exception of the 8 women of the *illiterate 15 and above* group; only 5 of them, or $62\frac{1}{2}$ per cent, succeeded. The time ranged in these successful cases from 9 seconds to 275 seconds. The average performance time for the first trial in all of these illiterate groups was 86 seconds. The shortest average time (54 seconds) was made by the 5 successful members of the group which made the

poorest record; namely, the women of the *illiterate 15 and above* group. The longest average time (99 seconds) was made by the *illiterate 10–11* group. The men and women of the *Slav illiterate* group made about the same average time, 96 seconds and 95 seconds respectively; while the men of the *Italian illiterate* group excelled the women, their respective times being 77 seconds and 97 seconds.

The average number of false moves for all the illiterate groups at the first trial was $8\frac{1}{4}$. The smallest average number of false moves 7) was made by the following groups: Men of the *Italian illiterate, illiterate 15 and above,* women of the *illiterate 15 and above* and children of the *illiterate 12–14* groups; the largest average number of false moves (11) was made by the *illiterate 10–11* group. As regards sex there is practically no difference in regard to the average number of false moves. It is interesting to note that a number of the illiterate groups made a smaller average number of false moves than the literate groups.

At the second trial 95 out of 97 illiterate immigrants succeeded. Two failures occurred, one in the *illiterate 12–14* group and the other was a man of the *Italian illiterate* group. The time ranged in these successful cases from 9 seconds to 239 seconds. The average performance time at the second trial in these 95 cases was 31 seconds, the shortest average time (16 seconds) was made by the 5 women of the *illiterate 15 and above* group, the longest average time (53 seconds) by the *illiterate 10–11* group. The men of the *Slav illiterate* and *Italian illiterate* groups made slightly better average time than the women.

The average number of false moves at the second trial for all the illiterate groups combined was less than 2, the largest average number of false moves (3) was made by the *illiterate 10–11* group, men of the *illiterate 15 and above* group, and women of the *Slav illiterate* groups, the smallest average number of false moves ($\frac{4}{5}$) was made by the 5 women of the *illiterate 15 and above* group.

CONCLUSIONS.

From the above, it may be concluded that:

(1) As 75 per cent of both literate and illiterate immigrants who were tested are able to solve the Healy Frame Test within 300 seconds, it is not too difficult a test at the time of landing for immigrants above the age of 9.

(2) At the first trial the illiterates performed the test a little more quickly and with a smaller number of false moves than did the literates. At the second trial the reverse was true.

(3) For practical purposes there is little difference between the literates and illiterates in the execution of this test.

(4) As in the case of the Geographic Puzzle, there is no marked difference in the performance of this test for different ages above the age of 9.

(5) For convenience, it may be remembered that, for both literates and illiterates at the first trial, the Healy Frame Test is performed in an average time of 90 seconds and with 9 false moves. At the second trial the performance time is only one-third to one-tenth of what it was at the first trial.

DISCUSSION.

It is important to mention that in the experimental examination which lasted about one and one-half hours for each immigrant, the Healy Frame Test was executed toward the close of the examination after the immigrant had been undergoing various tests for a period of from 70 to 75 minutes. At this period some subjects were more fatigued, some more discouraged, and others more enthusiastic than at the beginning of the examination.

At the beginning of the investigation it was presumed that the Healy Test would be a new problem for nearly all alike, that the small amount of formal schooling, one or two years, in the case of literates, would not bestow any material advantage on them in the execution of this test. It would now appear that this idea was correct. The percentage of successes in the two classes of immigrants was almost identical (83+ per cent literates; 81½ per cent illiterates).

The natural order of performance was in the majority of cases to first place piece 1 in its proper transverse position. This procedure fills a comparatively large space and simplifies the problem to an opening into which 4 pieces must be placed. Pieces 2 and 3 are next placed, sometimes piece 2 being placed first, but more often piece 3. Pieces 4 and 5 are usually the last pieces placed. These 5 small pieces can be arranged in 16 combinations, any one of which is correct.

In doing the Healy Test a piece may be rightly placed but its position may be relatively false and it is therefore counted as a false move. Thus, in Fig. 45 piece 4 is occupying a faulty position. Piece 5 is then placed in the lower left corner. Its position, while actually true, is relatively false as long as piece 4 remains where it is. In assuming this position a false move is credited to piece 5. When pieces 4 and 5 are so placed as to assume the position represented in Fig. — the subject may get a false sense of security and hold tenaciously to this false position.

The Healy Frame Test, like many other performance tests, shows the immigrant's ability in two directions, reasoning and learning. If he has never done the test before and does it quickly and with few false moves, or if he carefully observes the frame and the individual

pieces and with a few false moves slowly accomplishes the task, reasoning ability in some degree is suggested. However, he may fail to perform the test within the required 300 seconds and yet be a good reasoner. Some accidental circumstance, such as emotional disturbance and fatigue, prevent the successful execution of the test.

Should the immigrant become acquainted with this test before landing it would be of little value as a test in reasoning, for success would be simply a memory feat. A test in reasoning must be composed of new and unfamiliar elements as well as of old and familiar ones. After the immigrant has been shown how to solve the Healy Test, or after he has, over a considerable time, worked it out for himself, the manner of the performance and speed of performance at the second trial will throw some light on his learning ability.

At times, the second trial shows the accidental nature of the success at the first trial.[1] For instance, in the second trial, when piece 1 is placed longitudinally instead of transversely at the start. When this happens it usually means that the subject is facing the problem for the first time. His success at trial 1 was accomplished accidentally while his attention was directed to other affairs, internal or external. Such a movement at the second trial may also mean a defective reaction. Exceptionally, this test has been performed twice in succession by accident.

As in all other tests, any previous experience related in any way to this test will be of assistance to the subject in performing it. In this connection, during the investigation it seemed that carpenters and bricklayers, perhaps on account of their keenness of form perception, executed the test with comparative ease. One immigrant did poorly with the Opposites and other tests. When asked as to how he succeeded in doing the Healy so well, he replied through the interpreter, "I am a brickmaker and the arrangement of these pieces comes easy to me."

The test is considered well performed if done quickly at the second trial, even though a long time was required and many false moves made at the first trial. There should be no unusual delay in the doing of this test at the second trial. In general, when the Healy Frame Test has been mentally analyzed and performed, there should be no subsequent trouble in executing it. Occasionally, at the first trial the normal immigrant will give a smile of gratification as he analyzes, sees the point, and completes the test. In such cases the second trial is usually accomplished in from 10 to 15 seconds.

If the intelligent subject keeps in mind the abstract principle "Every space must be filled," he will succeed even though he have

[1] A psychologist visiting Ellis Island made an objection to this test, saying that if piece 1 accidentally fell into its right position at the start, the test would be so much easier to perform. This is probably a valid objection, but the same objection could be made to other tests.

comparatively poor vision. The execution of the test does not require the thorough searching of details required in the case of the Geographic and Relationship Tests. In fact, whenever an intelligent subject has a restricted visual field he will be able more easily to perform this test than either the Geographic or Relationship Tests.[1]

RELATIONSHIP.

The Relationship Test was suggested by Prof. R. S. Woodworth, of Columbia University. The testing material consists of 2 parts—the board and the field.

(1) The board is $18\frac{1}{2}$ inches long and $5\frac{3}{4}$ inches wide. It contains 10 raised designs or pieces securely attached. Four of these designs, situated on the upper row, are similar in shape and color to 4 designs of the lower row. The only difference in the designs of the 2 rows is a difference in size.

Two other designs (a large black square situated on the upper row and a small red triangle on the lower row) are opposite vacant spaces. (Fig. 46.)

(2) The field, situated to the right of the board, contains 13 detached designs of odd color and shape. Among these pieces are 2 squares, 1 large and 1 small; and 2 red triangles, 1 large and 1 small.

METHOD OF TESTING.

The board and field were placed on the examining table in front of the immigrant. Pointing to the large and small pieces of the board the interpreter said:

These designs of the upper row are very much like the designs of the lower row. They are of the same color and shape. This circle is like that circle [pointing to them].

---

[1] The following is quoted from p. 15 of one of the psychological monographs "Tests for Practical Mental Classification" by William Healy, M. D., and Grace Maxwell Fernald, Ph. D.:

"This test brings out perception of relationships of form and also the individual's method of mental procedure for the given task—particularly his ability to profit by experience of repeated trials, in contradistinction to the peculiar repetition of impossibilities characteristic of the subnormal and feeble-minded groups. * * * It would seem apparent that for estimating mental ability the method pursued in this task is of much greater value than the actual time. Probably all would acknowledge that a trial method, where the subject proceeds intelligently from one apparent possibility to another, even though a relatively long time is consumed, will not necessarily indicate lack of native ability. * * *"

The following is quoted from p. 107 of "The Individual Delinquent" by William Healy, A. B.' M. D. The quotation shows what Dr. Healy has to say about his own test. His observations, of course, have been made in an environment different from that of arriving aliens.

"*Test III. Construction Test A.*—This is one of our more important tests. * * * No normal person over 8 or 9 years should fail to do it in 5 minutes. At 12 years we find great variation in time, showing very distinct differences in ability. Some grasp and plan the task very readily, performing it in 12 seconds to 15 seconds; nearly all of those normal mentally getting it done in 2 minutes. To be considered as done well, it should be done within these limits, and without replacing pieces in obviously impossible positions. Of course a planned method is better than trial and error, but some get through rapidly by quickly perceiving the possibilities of the latter. The number of moves used depends, of course, on the method. Estimation of the method is certainly more important than the time, within the above limits. The least possible number of moves is five. The private-school group all succeeded from the second grade up with a gradual diminition of the average time, which in the second grade was 2 minutes 7 seconds; 33 per cent failed in the first grade, even with 10 minutes trial, and 23 per cent in the second grade. Beginning with fourth grade 50 per cent did it by planning. None in this school did any better than many of the best in the group of offenders."

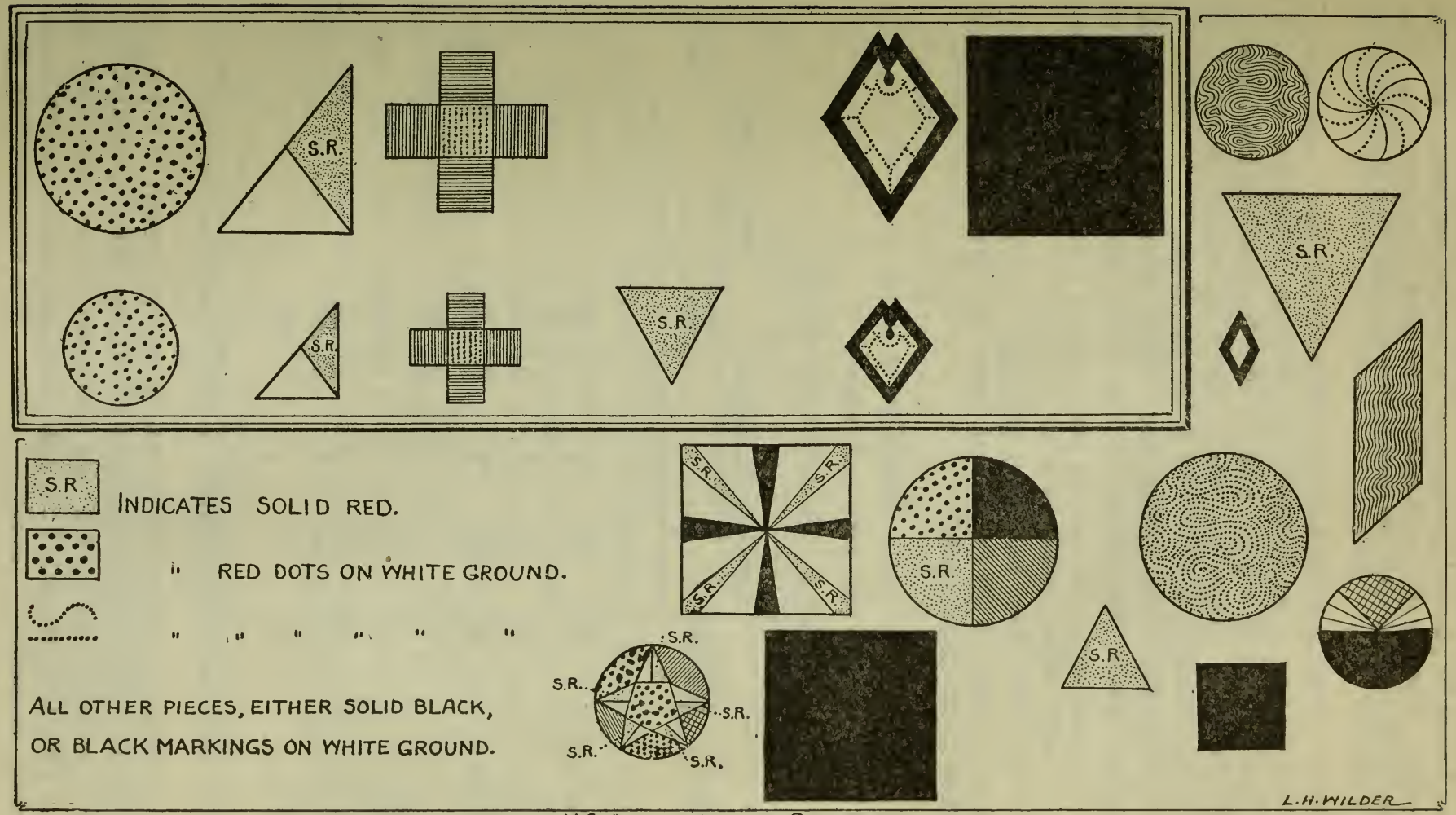
S.R
INDICATES SOLID RED.
" RED DOTS ON WHITE GROUND.
" " " " " "
ALL OTHER PIECES, EITHER SOLID BLACK,
OR BLACK MARKINGS ON WHITE GROUND.
L.H.WILDER
U.S. PUBLIC HEALTH SERVICE.

FIG. 46.—Arrangement of pieces in Relationship Test. The markings are only roughly indicative of the actual blocks used.

This triangle is like that triangle, this cross is like that cross, this diamond is like that diamond; but all the pieces of the upper row are large, all the pieces of the lower row are small. There are two vacant spaces on the board [pointing to them]. Find from the field [pointing to it] the two missing pieces and place them in their positions on the board.

There are three possible moves to be made at each vacant space:

(1) The placing of an obviously wrong piece, which was scored 0.

(2) The placing of a piece exactly like the piece in the opposite row (same color, shape, and size). As a movement of this kind shows some thinking, a score of ½ point was given.

(3) The placing of the proper piece. This piece will be the same in color and shape, but different in size to the piece of the opposite row. The placing of the correct piece scored 1 point. The perfect score for both vacant spaces was therefore 2.

After the instruction had been given the immigrant was allowed a minute in which to fill the vacant spaces and make any correction he wished in his movements.

RESULTS.

The results of this test were as follows:

TABLE 40.—*Results of Relationship Tests.*

Group.	Number examined.	Number of aliens scoring one or more points.[1]			Percentage.	Number of aliens scoring less than one point.		Percentage.
		2 points.	1½ points.	1 point.		½ point.	0 points.	
Literates:								
9–11	12	6	4	2	100	.....	.....	.....
Hebrew, 9–11	25	9	9	6	96	.....	1	4
12–14—								
Boys	18	6	4	6	89 −	1	1	11 +
Girls	19	10	6	2	94½+	1	.....	5½−
15-above—								
Men	51	19	11	16	90 +	.....	5	10 −
Women	49	26	8	9	87½+	.....	6	12½−
Illiterates:								
10–11	4	.....	.....	4	100	.....	.....	.....
12–14	8	1	1	4	75	1	1	25
15-above—								
Men	19	4	6	7	89½	.....	2	11½
Women	8	2	3	1	75	1	1	25
Italian—								
Men	19	4	5	4	68½+	1	5	31½−
Women	20	3	2	6	55	2	7	45
Slav—								
Men	10	2	2	5	90	.....	1	90
Women	30	8	8	12	93⅓	1	1	62⅔

[1] One point was given for correctly placing each of the two pieces in the vacant spaces. One-half point was scored for placing a piece exactly like the one in the opposite row (of the same size).

Seventy-five per cent of all literate groups succeeded in scoring at least 1 point. Seventy-five per cent of all the illiterate groups succeeded in scoring 1 point with the exception of the *Italian illiterate* group. Only 68½ per cent of the men and 55 per cent of the women of this group succeeded in scoring 1 point. The comparatively poor

showing of this group is perhaps the most interesting feature in the result.

It will be noticed that the young subjects of both literate and illiterate groups did as well if not better than many older subjects.

DISCUSSION.

This is essentially an elementary test in problem solving or reasoning involving the relationship of color, size, and form perceptions. The sagacious subject in doing the test surveys the board, observing its component parts and their relationships. Likewise, he will survey the field and by a process of his selective judgment will complete the test.[1]

Good vision is necessary for the performance of this test.

MODIFICATION.

The Modification Test is a modified form of the Geometrical Figure Test used by A. R. Abelson and was suggested for trial among arriving immigrants by Prof. Henry Alfred Ruger, Department of Psychology, Teachers College, New York City.

The Geometrical Figure Test consists of a series of designs containing circles, squares, and triangles interlocking one another in various ways. Some of the figure arrangements are simple, others complicated. The test consists in getting the subject to point to a spot on a certain design that would be included within so many circles, so many triangles, and so many squares.

The immigrants, both literates and illiterates, experimented upon in this examination are unfamiliar with these geometrical forms and before such a test could be attempted with them a thorough explanation of these figures would have to be made. As such a procedure would cause delay, it was thought that a simplified form of the same test could be used, only substituting familiar animals for the geometrical figures. Hence the modified test as presented to the immigrants in this experiment consisted of 4 designs containing the outline drawings of 2 chickens, 2 pigs, and a man arranged in different interlocking combinations. The combinations used were as follows:

1. Pig and chicken. (Fig. 47.)
2. Pig, chicken, and man. (Fig. 48.)
3. Two pigs, chicken, and man. (Fig. 49.)
4. Two pigs, 2 chickens, and man. (Fig. 50.)

[1] Surgeon T. Clark of the Public Health Service after seeing this test performed a number of times suggested that instead of having the board composed of attached pieces, that every piece be a detached piece and that it be fastened to its position on the board by a screw or a glove-button device.

This would enable the examiner to set up a number of new problems. In this event, coaching a stupid immigrant on any particular problem before the examination would have little influence on the result.

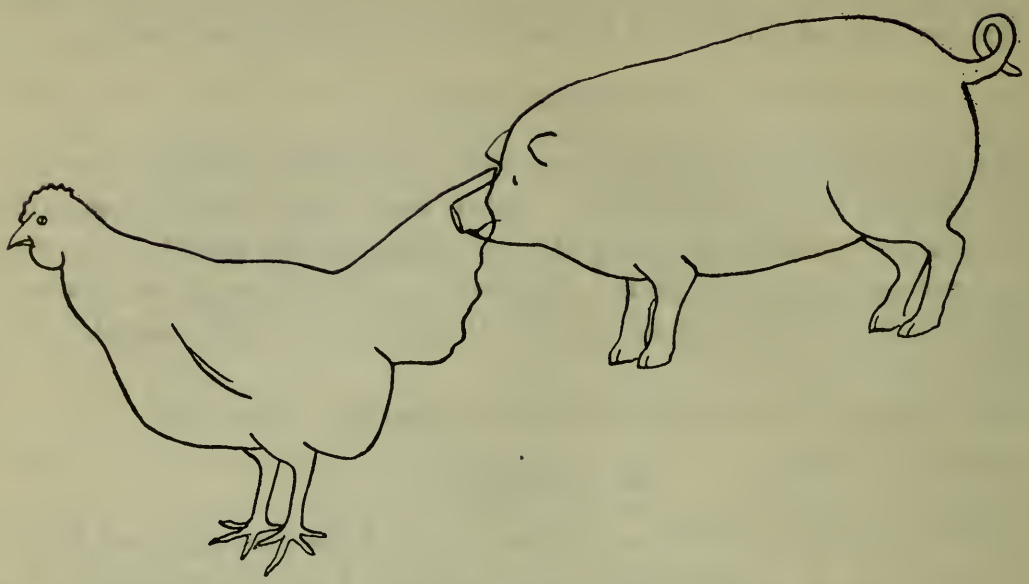

FIG. 47.—Pig and chicken. Modification Test. (Reproduction is one-fourth the size of the original.)

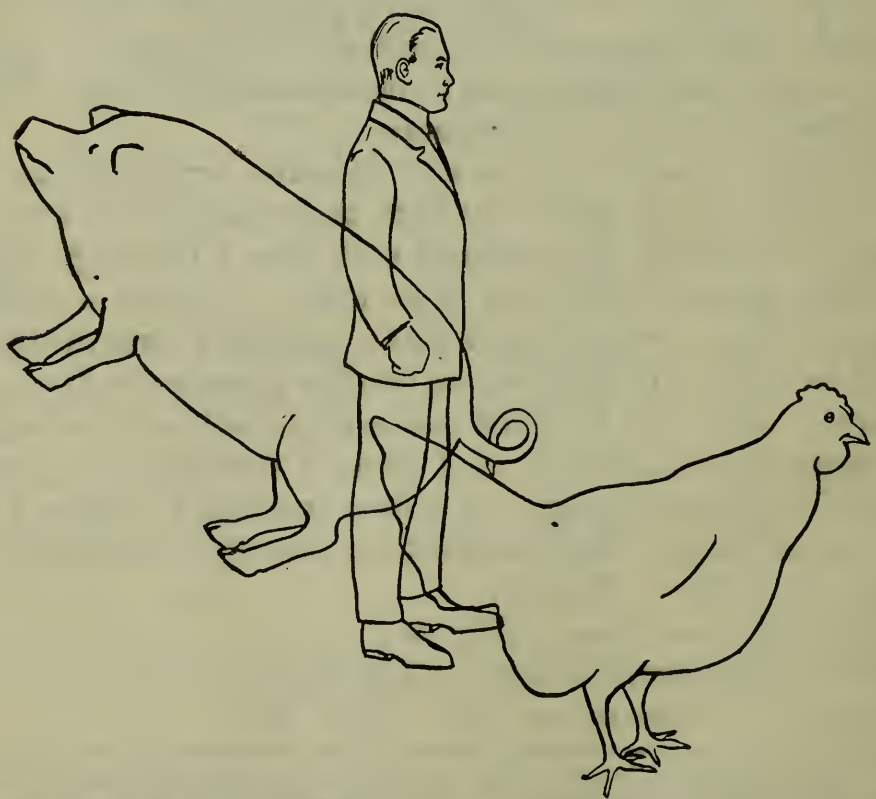

FIG. 48.—Pig, chicken, and man. Modification Test. (Reproduction is one-fourth the size of the original.)

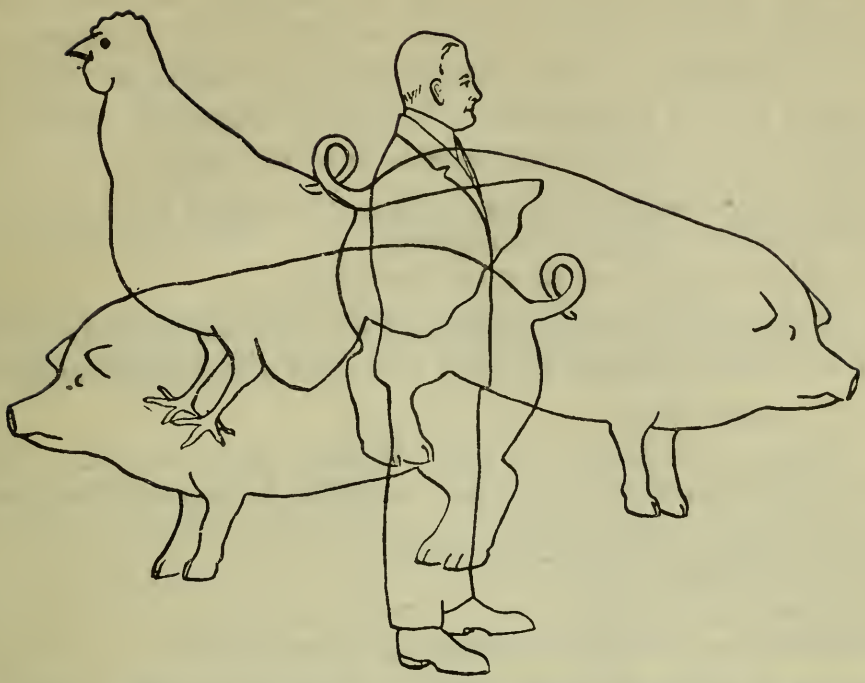

FIG. 49.—Two pigs, chicken, and man. Modification Test. (Reproduction is one-fourth the size of the original.)

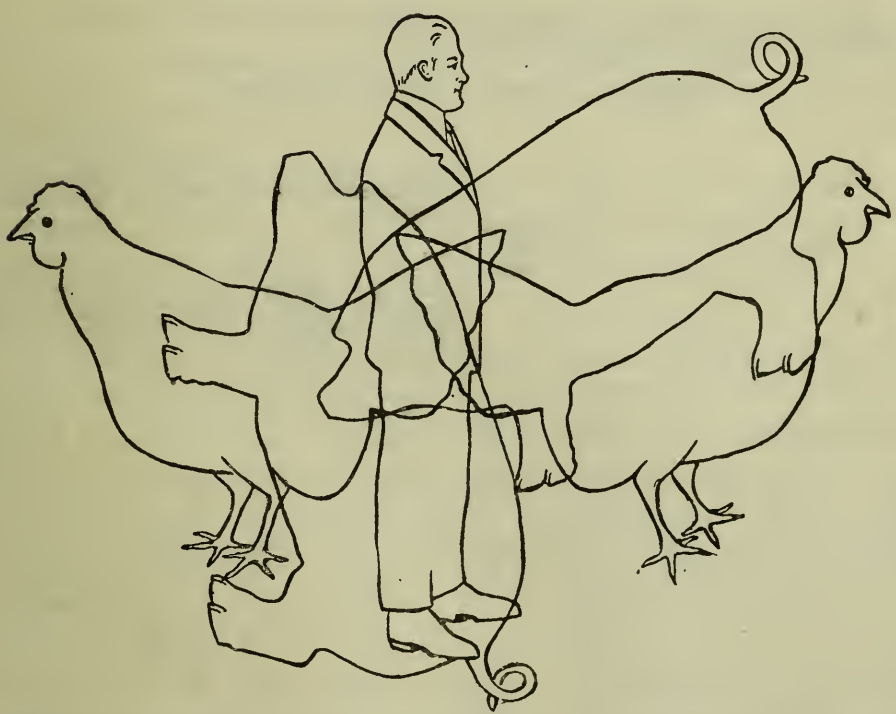

FIG. 50.—Two pigs, two chickens, and man. Modification Test. (Reproduction is one-fourth the size of the original.)

METHOD OF TESTING.

The design containing the pig and chicken (fig. 47) was placed on the examining table in front of the subject. The interpreter first asked the immigrant if he recognized the drawings. Practically all answered in the affirmative. A pointer was then placed in the immigrant's hand and the interpreter said to him:

Touch with pointer only the chicken. [Pause for execution.]
Touch only the pig. [Pause for execution.]
Now touch both chicken and pig at the same place.

At the termination of this explanation, if the subject did not comprehend what was wanted of him, a second and similar explanation was gone through with.

The design containing the pig, chicken, and man (fig. 48) was then placed in front of the subject, and the interpreter said to him:

Touch only the pig. [Pause for execution.]
Touch only the chicken. [Pause.]
Touch only the man. [Pause.]
Now touch all 3—pig, chicken, and man—at the same place.

This test was almost invariably accomplished. Then the designs containing 4 and 5 animals were placed in front of him, and a similar instruction was gone through with in solving each design.

RESULTS.

The results of the tests are given below:

TABLE 41.—*Results of Modification Test.*

Group.	Number examined.	Aliens successful with designs containing at least 4 figures.[1]			Aliens successful with designs containing less than 4 figures.	
		Designs with 5 figures.	Designs with 4 figures.	Percentage.	Designs with 3 figures.	Designs with 2 figures.
Literates:						
9–11	12	2	7	75	3	.....
Hebrew, 9–11	25	3	18	84	3	1
12–14—						
Boys	18	5	10	83⅓	3	.....
Girls	19	5	14	100	.....	.....
15-above—						
Men	51	17	31	94 +	3	.....
Women	49	15	28	87½+	5	1
Illiterates:						
10–11	4	1	2	75	1	.....
12–14	8	2	6	100	.....	.....
15-above—						
Men	21	4	15	90½	1	1
Women	8	1	5	75	1	1
Italian—						
Men	20	4	14	90	2	.....
Women	20	2	15	85	2	1
Slav—						
Men	10	3	6	90	1	.....
Women	30	4	22	86⅔	4	.....

[1] It is to be understood that aliens succeeding with a certain design have also been successful with each of the simpler designs.

Seventy-five per cent of every group were successful with designs containing at least 4 animals. The men, both literate and illiterate, made a better showing than the women. The girls of the *literate 12–14* group were the only exception, as they excelled the boys of the same group. The Italian and Slav groups seem to be on a par in the performance of this test. No difference exists in the solution of this test as regards age, the 10 and 11 year old children seeming to do as well as the adults. For practical purposes it may be concluded that:

Normal immigrants above the age of 9, regardless of age, nationality, and literacy, can succeed with designs containing 4 animals.

DISCUSSION.

The classification of certain tests depends in a degree upon the kind of subjects that are tested. A simple test that almost reflexly brings out perception and discrimination in a highly educated and experienced person may be classified as a real test in reasoning when it is used on an inexperienced and illiterate person. The Modification Test is an entirely new and complex presentation to the majority of immigrants, and it is therefore best to classify it among the problems or reasoning tests. Few immigrants of the peasant type have had experiences which would assist them in the performance of this test. Furthermore, the results show that the record of performance is about as good in the case of the illiterates as in that of the literates.

In view of these facts it might be well to claim that this test is one of the best tests of the entire investigation for bringing forth native ability.

The Modification Test brings about that form of purposive thinking wherein a selection which fulfills certain conditions must be made. To fulfill the conditions in this test, the subject must have a perception of the individual animal. The outlines of each animal must be isolated and visually traced until it is plainly seen that such outline surrounds the proposed point of contact. When all the animals of a design have been thus considered, the hypothetical point of contact becomes the real point and the problem is solved.

The calm and thinking subject, in solving the design containing five animals, will look slowly to the right and left, occasionally turning the design from side to side. After mentally tracing and searching over a period of from 5 to 30 seconds, he will place the pointer on the right area. In other words, a considerable delay, moving of the eyes from side to side, as attention to separate details takes place, and a correct plunge with the pointer, would indicate that the subject is employing the "thinking method."

If the subject plunged the pointer quickly, especially in the case of the last design, and struck the right area, another trial was im-

mediately given him in order to see if his success at first were accidental.

The method of administering this test—that is, getting the subject to point out each animal before pointing to the central contact area—is really a number of subsidiary tests, each involving an analytic process.

Other tests similar to the Modification Test may be employed in the mental examination of immigrants. Designs containing other animals or other objects could be arranged similarly to the animals here presented, the idea being to have a series of new problems to present to the immigrant at successive examinations, in order that light may be thrown on his reasoning and learning ability.[1]

DEFINITIONS.

The definitions of two common nouns, a verb, and an abstract noun were required of each immigrant. The words selected were: Tree, bed, run, and truth.

METHOD OF TESTING.

The interpreter said to the subject, "What is a tree?" The literal translation of the immigrant's response was quickly written down on his chart. Then the other definitions were taken up in the same way.

The replies given by immigrants were so unsatisfactory that it was hypothecated early in the experiment that ability to define was dependent to a large extent upon definite training. In order to test the truth or falsity of this hypothesis a number of immigrants were given the definition of a chair,[2] after which they were asked to define a table in order to see if there occurred any improvement in defining ability.

RESULTS.

The definitions here presented are selected from members of the *literate 9-11*, *Hebrew literate 9-11*, and *Slav illiterate* groups. The definitions of a table as well as of the four original words are given.

LITERATE 9–11 GROUP.

Italian (male, age 9, 3 years of schooling).

Tree: A plant.
Bed: It is an article; it serves for people to lie upon.
Run: A child that is going through the streets runs.
Truth: (No reply.)

Table: To eat on, to write on, to iron clothes on.

---

[1] Clark, of the Public Health Service, suggests that the contact point on the different designs be variously placed. This suggestion, while making the execution a little more difficult, rules out the accident phase, and if carried out, will undoubtedly enhance the value of the test.

[2] The following definition was used, the interpreter making a distinct pause between the different parts of the definition:

"A chair is a piece of furniture—It is made of wood, iron, or other materials—It may or may not have legs—It is used by people to sit on—For the purpose of working or resting."

Italian (male, age 10, 2 years of schooling).

Tree: A wood, there are leaves, there is fruit on it.
Bed: On which we go to rest.
Run: One is to run.
Truth: To tell the truth is right, but not tell a lie.

Table: To eat on, to write on, to stand things on, to put the lamp on, and sometimes to lay the baby on.

Italian (male, age 10, 1 year of schooling).

Tree: It makes fruit.
Bed: That in which we sleep.
Run: To do a thing and to do that in quick time.
Truth: Not to tell wrong things.

Table: Has 4 legs, is made of wood, which we eat on.

Italian (male, age 11, 3 years of schooling).

Tree: Make fruit.
Bed: Where you lay down at night.
Run: A child runs.
Truth: To tell the truth, not to tell lies.

Table: Is made to write on, to receive visitors, to beautify, for studying, for writing letters, to put the table cloth on, to put the eatables on, then to eat, then you take the things off, and you wash the dishes.

Russian Pole (male, age 11, 1½ years of schooling).

Tree: Woods.
Bed: Bedding.
Run: To trot.
Truth: To say something right.

Table: Is a furniture, it is to put things on.

Russian (male, age 9, 9 months of schooling).

Tree: It's a plant.
Bed: Where one has to sleep on it.
Run: To run with one's legs.
Truth: If one said the truth, just what he had done.

Table: Is a furniture, used to work on.

HEBREW LITERATE 9–11 GROUP.

Russian Hebrew (male, age 9, 5½ years at Cheydar).

Tree: Wood.
Bed: People sleep in it.
Run: To walk fast.
Truth: If you tell something and you don't want to believe it unless it is true.

Table: A furniture, one does something on the table, it is made of iron or wood, may be with legs or without legs.

Russian Hebrew (male, age 9, 4 years at Cheydar).

Tree: That grows apples and other fruits.
Bed: To sleep on.
Run: To work.
Truth: To tell a true thing.

Table: On a table you eat, write, study, work on it, I do not know how it is made.

Russian Hebrew (male, age 9, 2 years at Cheydar).

Tree: Grows.
Bed: Sleep in.
Run: If you get in a place where they are fighting you run away.
Truth: Not to tell a lie.

Table: Is to eat on, put things on, it is furniture.

Russian Hebrew (male, age 10, 5 years at Cheydar).

Tree: Wood.
Bed: Either wood, iron, or nickel.
Run: Move legs fast.
Truth: Not a lie.

Table: Is an object, on table they put down things, and eat and write, there are tables of one leg, it is of wood.

Russian Hebrew (male, age 10, 3 years at Cheydar).

Tree: Get fruit from it, and wood from it.
Bed: We sleep on it.
Run: To chase.
Truth: To tell the truth.

Table: Made of wood, it is to eat on, drink on or work on.

Austrian Hebrew (male, age 10, 2½ years of schooling).

Tree: It is apples.
Bed: To sleep on.
Run: Walk fast.
Truth: Correct.

Table: It is to write on, to eat on, to put things on, it is made of wood, iron, or other things, it is made with or without legs.

Russian Hebrew (male, age 10, 2 years at Cheydar).

Tree: It has roots and grows to fruit.
Bed: We sleep in it.
Run: To walk fast.
Truth: To tell a right thing, not to tell a lie.

Table: Is a furniture. On the table we eat, write.

Austrian Hebrew (female, age 10, 3 years of schooling).

Tree: It grows.
Bed: To sleep in.
Run: Walk fast.
Truth: Not to tell a lie.

Table: Is used for doing things that one had to do at a table, it is wood, has legs.

Russian Hebrew (female, age 10, ½ year of schooling in addition to 2 years at Cheydar).

Tree: It grows.
Bed: To sleep in.
Run: To go faster.
Truth: One does not tell a lie, that's the truth.

Table: It is a furniture, one works on it, writes on it.

Russian Hebrew (female, age 10, 2 years at Cheydar).

Tree: It grows fruit.
Bed: To sleep in.
Run: Run with one's legs.
Truth: Not to tell a lie.

Table: Is a furniture, to iron on, to eat on, to put things on.

Russian Hebrew (female, age 10, ½ year at Cheydar).

Tree: It is wood.
Bed: To sleep on.
Run: If one needs something quick.
Truth: If you say something, you have to say the truth; a true word is the truth.

Table: Is a furniture, if one wants to eat, write or work he does it on the table, they put things on it. Make tables with or without legs, it is made out of wood, iron or other things.

Russian Hebrew (male, age 11, 6 years at Cheydar).

Tree: Which is growing.
Bed: People sleep on.
Run: Run fast, walk fast.
Truth: True.

Table: Has four legs, Can not be without legs, don't make tables out of iron, table is to eat on, to write on, to put things on.

Russian Hebrew (male, age 11, 6 years at Cheydar).

Tree: On a tree all kinds of fruit are growing.
Bed: Is to sleep on.
Run: When needs something in a hurry; he walks fast, runs.
Truth: If I tell you something you think it a lie, you ask some one else, and if they say no, you know I didn't say the truth.

Table: To write on, to iron things on, to work, to eat on, to put bread on.

Russian Hebrew (female, age 11, 1 year at Cheydar).

Tree: It grows fruit or something else.
Bed: To sleep in.
Run: One walks fast.
Truth: When one says the truth not a lie.

Table: A furniture, of wood, iron, or other things; on the table they write or do other things, put things on, has legs or no legs.

SLAV ILLITERATE GROUP.

Russian (male, age 16, 3½ months' schooling).

Tree: Something growing.
Bed: Object on which we sleep.
Run: Walking, then break out in a run.
Truth: Is true to tell the truth.

Table: Is to eat on, to write on.

Russian (male, age 18, 3 months' schooling).

Tree: Is a plant.
Bed: Cot to sleep on.
Run: To catch something as to run after.
Truth: If I see something and am asked about it, and say just what I have seen.

Table: Is a furniture; people are eating or writing on it. It may have one or four legs; it is also made of iron.

Russian (male, age 18, 5 months' schooling).

Tree: Pear tree, oak, birch, maple, linden.
Bed: What you sleep in.
Run: To get quicker to a place.
Truth: Whoever tells the truth.

Table: Has legs; we eat at the table coming home from work; they write on it, put things on it, and clean the table.

Russian Pole (male, age 20, no schooling).

Tree: To saw down and put houses from.
Bed: To lie down.
Run: To walk.
Truth: Not to lie.

Table: To eat on; to sit around; to read and write on.

Russian Ruthenian (male, age 22, no schooling).

Tree: Apple tree or an oak or cherry tree.
Bed: Quilt.
Run: A hare is running.
Truth: To tell the truth.

Table: To eat on; to write on; to do things on.

Austrian Ruthenian (male, age 24, no schooling).

Tree: What kind of tree?
Bed: To sleep on.
Run: To run away.
Truth: If one tell truth it is truth.

Table: Is to eat on.

Russian Pole (male, age 28, 5 months' schooling).

Tree: Is a plant.
Bed: A thing necessary for the people.
Run: To move away from the original place.
Truth: Correctness of the thing done.

Table: Is of wood; may be with or without legs; it is used for eating or to write on.

Austrian Ruthenian (female, age 16, 4 months' schooling.)

Tree: Apple tree, pear tree, plum tree, or willow.
Bed: To sleep on.
Run: That is the legs.
Truth: When you talk to one another you tell the truth.

Table: Is a furniture, covered with clothes; they sit at the table to eat, read, or write; it has drawers for books or other things.

Russian (female, age 17, no schooling).

Tree: Garden.
Bed: Cot to sleep on.
Run: To eat; I don't know; to walk.
Truth: Not to say a lie.

Table: Is made of wood, straw, or other material, with or without legs. At the table they sit down to eat or to work, to rest or to sew.

Russian Pole (female, age 18, no schooling).

Tree: A fir.
Bed: A cot.
Run: If you drive a horse he will run.
Truth: Who tells the truth not a lie.

Table: To put things on, to sew on.

Russian (female, age 18, no schooling).

Tree: To make house from, it grows.
Bed: To sleep on.
Run: To run to do it quicker.

Table: On the table we eat, write, and do other work; table stands; it is a furniture.

Austrian Ruthenian (female, age 18, no schooling).

Tree: That would depend upon what tree; I would give the name of a particular tree.
Bed: On which people sleep.
Run: To trot fast.
Truth: If you ask whether it is true, it is true if it is true.

Table: At a table people are sitting, putting dishes on and eating, it has legs and is made of wood and iron.

Russian (female, age 19, no schooling).

Tree: Material from which they make houses.
Bed: On which we sleep.
Run: Quicker than to walk.
Truth: Man lives right.

Table: On the table we eat and write.

Russian (female, age 20, no schooling).

Tree: Is a tree, woods.
Bed: Is a bed to sleep on.
Run: To run fast.
Truth: Is the truth.

Table: Is used to eat on; it is of wood or other things.

Austrian Ruthenian (female, age 20, no schooling).

Tree: To make things from.
Bed: To sleep on.
Run: To fly quickly.
Truth: When you tell something to some one; that is the truth.

Table: To eat on, to receive company around, and is made by a cabinet maker.

Austrian Pole (female, age 21, no schooling).

Tree: Would depend what tree.
Bed: To sleep in.
Run: To hurry.
Truth: Is that you must not lie.

Table: Is for writing, eating, and for other use. It has legs and is made of wood

Austrian Ruthenian (female, age 21, no schooling).

Tree: An ash tree, oak tree.
Bed: To sleep on.
Run: All sorts of things are running.
Truth: To tell the truth.

Table: Is to write on, eat on. It may have drawers, it is of wood, it has legs.

Austrian Ruthenian (female, age 23, no schooling).

Tree: Is an oak or a linden or an aspen.
Bed: To sleep on.
Run: One is in a hurry to run.
Truth: Is the best in the world.

Table: Is to eat on, made of wood or iron, they sit down at table to eat or receive visitors.

Russian (female, age 26, no schooling).

Tree: A tree used for building.
Bed: On which people sleep.
Run: When a man walks fast.
Truth: If a man acts righteous.

Table: Always has legs, people sit at it to read and write; it is made of wood or something else.

Russian Ruthenian (female, age 32, no schooling).

Tree: Depends; fruit tree, shade tree.
Bed: The blankets in which we sleep.
Run: To walk is slow; to run is fast.
Truth: Which is true.

Table: Is used for meals or for writing, play cards at the table or use it for other purpose, work on the table, to iron, cut clothes on.

Austrian Ruthenian (female, age 20, no schooling).

Tree: Birch aspen.
Bed: Of wood.
Run: If you run home in a hurry.
Truth: To tell the truth.

Table: Is to eat on and to write on.

DISCUSSION.

Immigrants defined some words better than others. They had less difficulty in defining "bed" than in defining the other words. "Run" and "truth" were as a rule poorly defined. "Bed" and "tree" in many instances were defined in terms of use.

The small amount of schooling which literate immigrants had received was of little assistance to them when it came to rendering definitions.

Much may be learned about immigrant psychology by a careful study of the above definitions. Many which are poorly expressed, so far as language is concerned, and appear to be worthless at first sight will upon further observation be found to contain one or more essential ideas. Hence in studying an immigrant's definition the examiner should strive to pick out the idea or ideas which the definition contains. Thus, when the immigrant defines "run" by saying "with legs" he means movement of the legs. On account of a lack of formal training, he can not express himself.

When as a definition of "run" he says, "All sorts of things are running" his idea most likely is that the capacity for running is common to many animals. When he says a tree "is an oak or a linden or an aspen" his idea is that trees are divided into many family groups.

Again when an immigrant says a tree "is a seed that sprouts into a tree" his definition embodies three ideas; namely, that the tree starts from a seed, that it grows, and that it blooms into a full-grown affair. This definition simply lacks skill in expression.

Careful study of an immigrant's reply will show that his definitions, instead of being abstract, in many cases embody his own personal experiences.

The real difficulty is the lack of language ability and inexperience in the defining task, both of which are remediable by formal training. It is a hard matter to gauge an immigrant's concepts at the time of landing by these definitions. It is likely that the immigrant possesses many ideas in regard to these and other words and in attempting to define he only gives up a part of his information in regard to a given word.

After the word "chair" was defined for the immigrants, it was found that practically all showed improvement in defining the word "table," most of them defining by use and in a more comprehensive manner. The greatest improvement in defining after training occurred among the Hebrew children.

Simply going to school will not enable an immigrant to define. In order to perform this task attention must be given to concept development and the expression of ideas by means of language. In conclusion it may be said that above the age of 9 literate as well as illiterate immigrants at the time of arrival give very unsatisfactory definitions. However, many immigrants are able to define common nouns principally in terms of use.

DESCRIPTION.

The Description Test consisted in presenting 5 pictures to the immigrant and getting him to describe what each picture represented. No preconceived notion as to what the immigrant knew concerning pictures was entertained by the examiner.

METHOD OF TESTING.

The 5 pictures—City, Butcher Shop, Barnyard, Harbor Scene, and Last Honors to Bunny (Fig. 51)—were presented to the subject one after another, permitting an observation of about 20 seconds in each case. The subject was then asked "Of what is this a picture?" His reply in the case of each picture was jotted down on his examination blank; but data are given in this bulletin only for the final picture (Last Honors to Bunny). In the case of this picture the following additional questions were asked, questions 2–6 being asked to find out at what question the main theme of the picture would be brought out:

2. What is going on in the picture?
3. What are the boys and girl doing?
4. What is the big boy doing?
5. Why is he digging a hole?
6. Is he digging a hole in which to bury the rabbit?
7. What is the girl going to do with the flowers?

RESULTS.

The replies of the 40 members of the *Italian illiterate* group to the first question ("Of what is this a picture?") are considered below. Five immigrants of this group gave a collective idea in their replies, 3 mentioning "country scene," 1 "woods," and 1 "New York." The replies of 9 indicated that the subjects saw some action in the picture. These replies were as follows:

(1) Girl, boy with shovel, boy crying, boy with flowers, cat, trees.

(2) Where the sheep are grazing.

(3) Three children that are promenading, one with flowers, one with shovel. While playing they find the dead rabbit. The sheep are grazing, the other child is displeased and is crying.

(4) Sheep grazing, cat.

(5) Children are playing with flowers and are watching the sheep.

(6) Boy is working with shovel, sheep are near, another one with hands to her face, a cat.

(7) Boy is hunting a rabbit, sheep, little girl, boy, hat.

(8) Children, child with flowers, boy that is digging, sheep, rabbit, plant, trees.

(9) He is working, girl has flowers, one is watching animal.

In reply to the same question (No. 1), 26 immigrants of this group simply enumerated details, some of the replies being as follows:

(1) Rabbit, 3 children, boy, private property, hat on ground, bunch of flowers, boy has a shovel in his hand.

(2) Three children, sheep, hat, this is a cat, I believe, trees around.
(3) Sheep, rabbit, children, taller boy has a shovel, hat.
(4) One little girl, 2 boys, 2 sheep, 1 lamb, a dead rabbit, a straw hat.
(5) Three children, sheep, hat, pig, trees.
(6) Children in field.

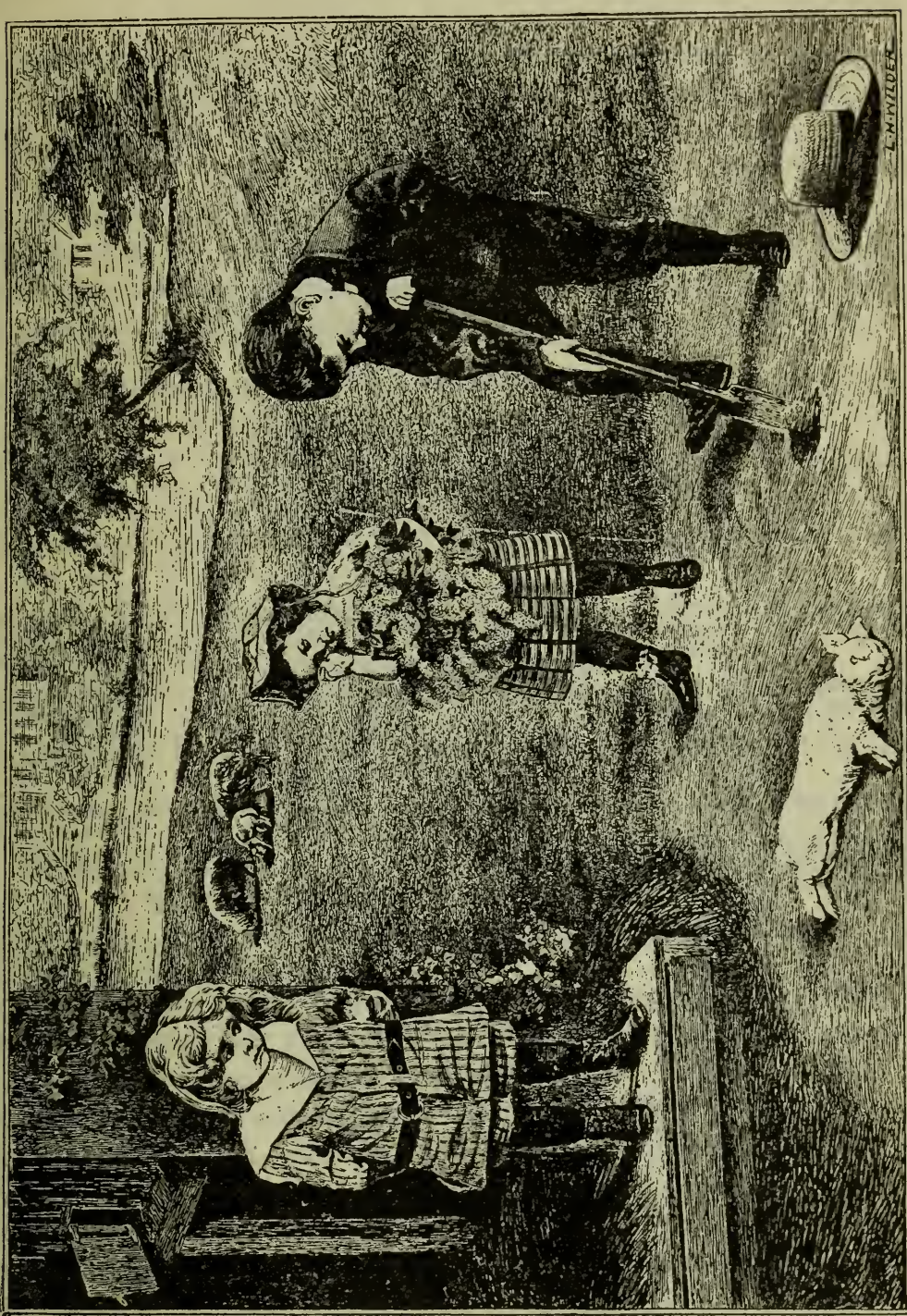

FIG. 51.—"Last Honors to Bunny" (taken from illustration used in Description Test).

(7) Children with spade, hat, child with basket of lemons, sheep, boy, rabbit, trees.
(8) This is a child, this is a child, a rabbit, a hat.
(9) Boy, another boy and girl, sheep, trees, house, hat, shovel.
(10) Two children, hat, this animal (pointing to rabbit) I don't know what it is, sheep, trees.

(11) Hat, man, child with handkerchief, flowers in other hand, little calf, a man.
(12) Three sheep, child
(13) Hat, little pig, sheep, children, child with flowers, stones.
(14) Three children, trees, a rabbit dead, boy has a shovel in his hand, trees.
(15) Two children, 1 boy, rabbit, hat, 2 sheep, lamb, trees.
(16) Children, 3 sheep, hat on ground, lamb on ground, hat.
(17) Man, girl, man, animal.

In response to this question 29 out of the 40 members of the *Italian illiterate* group pointed out the little white animal (rabbit) that lay on the ground and called it by the following names: Rabbit, 14; cat, 6; animal, 3; lamb, 2; pig, 2; calf, 1; rat, 1.

The complete responses to the first 6 questions will be shown in the case of 4 Italians of the same group. The first 2 (Nos. 15 and 73) failed to see the main point of the picture and the last two (Nos. 7 and 76) succeeded in interpreting the picture at question 5.

TABLE 42.—*Responses of 4 illiterate Italians to first 6 questions of Description Test.*

Questions.	No. 15, female, 31 years old.	No. 73, female, 39 years old.	No. 7, male, 29 years old.	No. 76, male, 27 years old.
(1) Of what is this a picture?	New York.....	Boy is hunting a rabbit. Little girl, boy, hat, sheep.	A country scene...	Sheep grazing, cat.
(2) What is going on in the picture?	Can I know what they are doing there?	It seems a private estate.	Three sheep.....	Dead cat is on the ground. Sheep grazing, stream passing.
(3) What are the boys and girl doing?	One is crying, one is shoveling, one is looking on.	Gathering flowers.	Playing.....	Children are bathing their feet in the water.
(4) What is the big boy doing?	Digging.....	He is hunting, he has a shovel and is playing.	Digging the ground with shovel.	He is playing with shovel.
(5) Why is he digging a hole?	How can I know?	Child's play.....	Maybe to bury the rabbit.	He wants to bury the cat.
(6) Is he digging a hole in which to bury the rabbit?	I don't know whether he will bury the rabbit or whether he is playing.	It may be if they do not eat it.		

The table below shows at what question in the picture the main point or theme of the story was brought out by the members of the *Italian illiterate* group. Nine immigrants failed to see the point altogether; 17 did not see the point until question 6 was reached; 9 did not see the point until question 5 was reached; 2 saw the point at question 3; and 3 saw it at question 2.

The last column of the table shows the response to question 7 (What is the girl going to do with the flowers?) In responding to this question 12 immigrants gave the "grave idea"; 10 gave the "home idea"—that is, to carry the flowers to mother or to the home—2 gave the "church idea"—that is, decorating the church—while 16 replies may be classed as miscellaneous.

TABLE 43.—*Question at which the point to picture (Last Honors to Bunny) was seen by members of Italian illiterate group and answers given by them to seventh question.*

At what question is the point seen?	What is the girl going to do with the flowers? (Question No. 7.)
Men:	
6	She wants to beautify something.
2	She wishes to adorn the house.
Point missed	I suppose she will present them to her mother.
Do	
6	She wants to take them to church.
6	To beautify some place.
6	Maybe she will give them to her brother.
6	To put on rabbit's grave.
6	Put into the grave.
2	She wants to adorn the rabbit's grave.
Point missed	How do I know.
3	She wants to decorate the grave.
5	She wants to adorn the grave.
5	Make an ornament for home.
Point missed	She will beautify the house.
Do	She is amusing herself.
5	I believe to decorate the rabbit's grave.
6	To bury them with the rabbit.
6	Take them to her parents.
5	Taking them home to her mother.
Women:	
5	She wants to amuse herself.
6	She wishes to cover the grave.
6	She wants to put them on table.
5	To put them on the rabbit.
5	She wants to put them on the animal's grave.
6	She is playing, too.
6	Perhaps take them home.
6	May decorate a little church with the flowers.
6	Bouquet.
6	Keep them for their perfume.
6	I don't know.
2	May want to put them on animal's grave.
Point missed	She wants to plant them.
5	Wants to carry them to church.
5	Take them with her to decorate.
Point missed	It seems she is crying and is disheartened.
Do	Wants to take them to her mother.
3	She wants to decorate the grave.
Point missed	How do you expect me to know.
6	To play.

Responses by some members of the *Italian* and *Slav illiterate* groups to certain questions [1] are given below. They will throw light on the small amount of general information and meager picture experience of immigrants.

TABLE 44.—*Replies by some members of Italian and Slav illiterate groups to certain questions as to Last Honors to Bunny picture.*

Nationality.	No.	Sex.	Age.	Question.	Answers.
Italian	.....	M.	18	Have you seen pictures before?	I have seen only a few pictures. They were the pictures of saints.
Do	7	M.	29	Have you seen pictures?	Yes; pictures of saints.
Do	52	M.	21	Why is he digging a hole?	He is not making a hole.
Do	12	M.	29	Is he digging a hole in which to bury the rabbit?	They don't put them under the earth.
Do	4	M.	30	Is he digging a hole in which to bury the rabbit?	I don't know what his intentions are.
Do	60	F.	16	Why is he digging a hole?	He wants to plant the flowers.
Do	49	F.	25	Is he digging a hole in which to bury the rabbit?	No; you can't see down the hole.
Do	73	F.	28	Is he digging a hole in which to bury the rabbit?	It may be that if they do not eat it.
Do	15	F.	31	Is he digging a hole in which to bury the rabbit?	I don't know whether he will bury the rat or whether he is playing.
Russian	10	M.	16	What are the boys and girl doing?	Attending the sheep.
				Have you seen pictures?	I have seen pictures only on religious subjects, images at home.
Do	25	M.	16	Have you seen pictures before?	I only saw pictures of saints and one picture book.
Do	1	M.	18	Why is he digging a hole?	Dog is dead; he wants to bury him.
Do	7	M.	18	What is the girl going to do with the flowers?	To plant.
Do	9	M.	33	Is he digging a hole in which to bury the rabbit?	May be.
Austrian Ruthenian	14	F.	16	Is he digging a hole in which to bury the rabbit?	I don't know.
Russian	23	F.	18	Have you seen pictures before?	My brothers have picture books; I look at them; I have seen pictures in other houses.
Austrian Ruthenian	15	F.	18	Is he digging a hole in which to bury the rabbit?	No.
Russian	5	F.	20	What is the big boy doing?	Looking at the bottle.
Do	19	F.	20	Is he digging a hole in which to bury the rabbit?	To reach water.
Austrian Ruthenian	21	F.	20	Why is he digging a hole?	I don't know. Is that hare asleep?
Do	2	F.	22	.....	Poor peasants do not cover the grass with flowers.
Russian	2	F.	26	Is he digging a hole in which to bury the rabbit?	I don't know.
Do	12	F.	33	Why is he digging a hole?	Wants to bury the cat or the hat.
				Of what is this a picture?	Sheep, saints.

[1] The question, "Have you seen pictures?" was used occasionally in addition to the questions given above in order to clear up psychological points.

Among the *Slav illiterate* group the dead rabbit was called by the following names: Cat, 8; pig, 1; wolf, 1; dog, 2; lamb, 1; animal, 1.

TABLE 45.—*Statistical Results of Description Test (picture entitled "Last Honors to Bunny").*

Group.	Number examined.	Number of aliens giving collective idea, etc., in reply to question, "Of what is this a picture?" (Question No. 1.)			Number of aliens seeing point at different questions.							Number of aliens bringing out "grave idea," etc., in answering question, "What is the girl going to do with the flowers?" (Question No. 7.)			
		Collective idea.	Action.	Detail only.	Question No. 1.	Question No. 2.	Question No. 3.	Question No. 4.	Question No. 5.	Question No. 6.	Failures.	"Grave idea."	"Home idea."	Miscellaneous replies.	No answer.
Literate:															
9–11	12	1	7	4	2	4	....	...	4	2	...	7	3	1	1
Hebrew, 9–11	25	.....	10	15	1	1	....	...	13	9	1	6	4	15	.....
12–14	37	2	18	17	1	3	2	...	17	11	3	13	8	16	.....
15–above	100	10	52	38	6	13	5	4	38	28	6	48	16	33	3
Illiterate:															
10–11	4	1	.....	3	....	1	....	...	1	....	2	.....	1	[1] 3	.....
12–14	8	.....	4	4	....	2	....	...	4	2	...	1	3	3	1
15–above	29	5	7	17	2	1	....	...	10	10	6	15	1	11	2
Italian—															
Men	20	3	6	11	....	2	1	...	4	8	5	7	7	6	.....
Women	20	2	3	15	....	1	1	...	5	9	4	5	3	[1] 12	.....
Slav—															
Men	10	.....	6	4	....	1	1	...	6	1	1	1	2	7	.....
Women	30	.....	8	22	....	....	1	...	12	11	6	6	[2] 3	10	.....

[1] Includes 2 aliens who gave the "church idea."
[2] One alien, not included in these figures, gave a "grave" or "home" idea.

DISCUSSION.

Pictures are useful for the test of associating a visual impression with an auditory word memory or associating an auditory impression with a visual memory. Thus, the examiner may get the subject to name the different details of a picture as he points to them or the subject may be requested to point to the different details as the examiner names them. Range and quality of experiences on the part of the subject may be determined by this procedure.

All of the pictures were poorly described. It is obvious that the result obtained from the "Last Honors to Bunny" picture is entirely different from the result which would be obtained in the case of people other than arriving immigrants.

In order to interpret a picture correctly, the immigrant must be familiar with pictures of various kinds. He must also be experienced in the customs or events portrayed in a picture. In addition he must possess the power of constructive imagination. In other words, he can arrive at a situation portrayed in a picture only after analyzing and separately considering all the picture elements in the light of past experiences, then combining all these findings into the interpre-

tation. Good vision is also a necessary requisite in the performance of this test. The poor showing is due more often to a lack of experience with pictures and the scenes which they depict than to a lack of constructive imagination.

Among the 100 immigrants of the *literate 15 and above* group, a group wherein we would naturally expect to find the quickest and best interpretations, we find that only 6 immigrants gave the correct interpretation of "Last Honors to Bunny" picture at the first scrutiny; 38 did not interpret the picture until question 5 was reached; 26 did not succeed until question 6 was reached; and 6 did not catch the point or theme of the picture at all. The other groups of immigrants did not do as well in this test as the *literate 15 and above* group.

In many instances when questions 5 and 6 were reached and the immigrant saw the essential point of the picture for the first time, a smile came over his face.

The poor interpretations of the last picture were partly due to some of the following causes: Mistakes of details; took the rabbit for a cat, dog, goat, pig, etc. They had never seen pets treated well. They had never seen them treated with signal honors. Many are not accustomed to seeing rabbits used as pets. Peasants do not see well dressed children and sheep grazing at the same time. Whenever sheep are grazing and people are near-by, it usually means the people are attending the sheep. In certain places it is not customary to cover the grave of the dead with flowers. Even if an immigrant has had some experience with pictures, pictures of this kind are hard to interpret.

From a problem standpoint, it is well in testing to use pictures that portray certain native scenes with which peasants are more or less familiar.

COMPARATIVE SCORES OF ARRIVING IMMIGRANTS.

In order to show for comparative purposes what the different groups and individuals accomplished during these psychological studies, a system of scoring has been arranged for those tests which required little or no paraphernalia. The tests scored are already in use at many immigrant stations.

POINTS ALLOTTED TO EACH TEST.

The points given to each test are enumerated in the following table:

TABLE 46.—*Points allotted to each test.*

	Points.
Counting:	
2 to 20 by 2's	2
20 to 1	3
20 to 2 by 2's	4
3 to 30 by 3's	4
Total	13
Addition:	
3+4	1
6+6	1
6+7	1
8+6	1
15+15	1
15+16	1
2+3+4	1
2+4+6+8	2
17+13+9+4	3
Total	12
Division:	
20÷4	3
Problems:	
20−(3+4)	5
20−(2+7)	5
Total	10
Cube Test:	
10 movements	10
Obeying commands	5
Copying and drawing from memory:	
Diamond	3
Double trapezoid	3
Trapezoid	3
Interlocking figure	3
Total	12

	Points.
Healy:	
Trial 1	[1] 6
Trial 2	1
Total	7
Repeating digits	9
Opposites	8
Learning [2]	4
Days backward	2
Name of months	3
Arranging weights	2
Grand total	100

TOTAL SCORE MADE BY EACH IMMIGRANT TESTED.

The following table gives the total score made by each immigrant tested. For reference the nationality, race, immigrant's number among those of his nationality, sex, age, and amount of schooling (in years) are given. In each group the immigrants are arranged according to age.

TABLE 47.—*Total score made by each immigrant, with data as to nationality, sex, age, etc.*

Group.	Nationality.	Race.	Immigrant's No. among those of his nationality.	Sex.	Age.	Amount of schooling expressed in years.	Score.
Literate, 9–11	Italy	Italian, South	13	M.	9	3	86½
	Norway	Scandinavian	1	F.	9	1½	75
	Italy	Italian, South	88	M.	10	2	83
	....do	.....do	85	M.	10	1	75
	Denmark	Scandinavian	1	F.	10	4	90
	Turkey	Greek	9	F.	10	3	90
	Denmark	Scandinavian	2	M.	11	5	91
	Italy	Italian, North	72	M.	11	4	82
	....do	Italian, South	89	M.	11	3	73
	Russia	Polish	6	M.	11	1½	83
	Italy	Italian, North	70	F.	11	4	85
	Russia	Russian	13	M.	9	1	89
	....do	Hebrew	8	M.	9	5½	84
	....do	.....do	34	M.	9	4	87½
	....do	.....do	36	M.	9	3	86½
	....do	.....do	22	M.	9	2	77
	....do	.....do	5	M.	10	5	87½
	....do	.....do	30	M.	10	3½	58½
	....do	.....do	25	M.	10	3	86
	....do	.....do	39	M.	10	3	93
	....do	.....do	47	M.	10	3	78
Hebrew literate, 9–11.	Austria	.....do	9	M.	10	2½	88
	Russia	.....do	23	M.	10	2	90½
	....do	.....do	46	M.	10	½	88
	Austria	.....do	31	F.	10	3	80½
	Russia	.....do	28	F.	10	2½	82½
	....do	.....do	29	F.	10	2	93
	....do	.....do	33	F.	10	1	83
	....do	.....do	38	F.	10	1	65
	....do	.....do	11	F.	10	½	89
	....do	.....do	42	F.	10	½	73½
	....do	.....do	17	M.	11	6	83
	....do	.....do	48	M.	11	5½	95
	....do	.....do	21	M.	11	4	91
	Rou nania	.....do	49	M.	11	2	79½
	Russia	.....do	15	F.	11	1	88
	....do	.....do	35	F.	11	½	78

[1] During the first trial, if the Healy Test is performed within the first 30 seconds, 6 points are allowed. If performed between 30 seconds and 60 seconds, 5 points are allowed; 4 points are allowed if it is performed between 1 and 2 minutes; 3 points are allowed if it be performed between 2 and 3 minutes; 2 points if it be performed between 3 and 4 minutes; and 1 point if between 4 and 5 minutes. At the second trial if it be performed within 30 seconds, 1 additional point is earned.

[2] If the immigrant succeeds in the Learning Test at trial 1, 4 points are given. If he succeeds at trial 2, 3 points are given; if at trial 3, 2 points; and if at trial 4, he obtains 1 point.

TABLE 47.—*Total score made by each immigrant, with data as to nationality, sex, age, etc.*—Continued.

Group.	Nationality.	Race.	Immigrant's No. among those of his nationality.	Sex.	Age.	Amount of schooling expressed in years.	Score.
Literate, 12-14	Italy	Italian, South	53	M.	12	5	89½
	Turkey	Hebrew	43	M.	12	5	95
	Norway	Scandinavian	3	M.	12	4	92
	Russia	Ruthenian	13	M.	12	3	89
	....do	Hebrew	37	M.	12	2	92
	Italy	Italian, North	97	F.	12	6	82
	Russia	Hebrew	41	F.	12	5	94
	Italy	Italian	21	F.	12	4	80
	....do	Italian, South	22	F.	12	3	77
	....do	.....do	92	F.	12	3	78
	....do	.....do	86	F.	12	2	84
	Russia	Hebrew	2	F.	12	½	79½
	....do	.....do	14	M.	13	6	92
	Austria	German	16	M.	13	6	75
	Greece	Greek	6	M.	13	5	96
	Italy	Italian, South	90	M.	13	4	73
	....do	.....do	28	M.	13	2½	83½
	Austria	Ruthenian	4	M.	13	1½	69
	Italy	Italian, North	71	F.	13	4	73½
	....do	Italian, South	31	F.	13	3	93
	Russia	Lithuanian	1	M.	13	1	63½
	Italy	Italian, South	98	F.	13	3	74
	....do	.....do	87	F.	13	2	83½
	....do	.....do	96	F.	13	2	76
	....do	.....do	2	F.	13	1	73½
	Russia	Hebrew	6	M.	14	6	94
	....do	.....do	45	M.	14	5	84½
	Austria	.....do	10	M.	14	4	83
	Russia	.....do	44	M.	14	4	96
	....do	Russian	8	M.	14	4	91½
	Italy	Italian, South	24	M.	14	2	79½
	Norway	Scandinavian	2	F.	14	7	95
	Italy	Italian, South	55	F.	14	4	85
	....do	.....do	99	F.	14	3	59
	....do	Italian	74	F.	14	2	69½
	Russia	Hebrew	3	F.	14	1	89
	....do	.....do	4	F.	14	1	72
Literate, 15 and above.	Italy	Italian, South	25	M.	15	8	87
	Russia	Hebrew	19	M.	15	7½	96
	....do	.....do	50	M.	15	3	93
	Italy	Italian	77	M.	15	1	82
	Russia	Ruthenian	10	M.	15	1	80
	Austria	German	10	F.	15	6	71
	Italy	Italian, north	51	F.	15	5	91
	....do	.....do	101	F.	15	5	88½
	....do	Italian, south	100	F.	15	4	86½
	Austria	Hebrew	12	F.	15	2½	89½
	Italy	Italian	65	F.	15	2	85
	Austria	Ruthenian	17	F.	15	1½	68
	Russia	Hebrew	40	F.	15	[1] 7	76½
	Turkey	Greek	7	M.	16	7	96
	Spain	Spanish	23	M.	16	3	57
	Russia	Russian	20	M.	16	2½	91
	....do	Hebrew	16	M.	16	2½	92
	Italy	Italian, north	18	M.	16	2	88½
	Ireland	Irish	1	F.	16	8	95½
	Norway	Scandinavian	4	F.	16	7	88½
	Austria	German	1	F.	16	6	89
	....do	.....do	11	F.	16	6	95
	....do	.....do	15	F.	16	6	88½
	Italy	Italian, south	102	F.	16	6	83
	Austria	Ruthenian	23	F.	16	3	89
	Greece	Greek	4	F.	16	2	82
	Italy	Italian	83	F.	16	2	82
	....do	Italian, south	91	F.	16	2	75
	....do	.....do	30	M.	17	6	97
	Spain	Spanish	2	M.	17	3	91
	Russia	Russian	21	M.	17	3	90
	....do	.....do	3	M.	17	2	88
	Italy	Italian	75	F.	17	5	77
	Austria	Ruthenian	16	F.	17	3	88
	Russia	German	17	F.	17	3	71
	Italy	Italian, south	45	F.	17	3	72½
	Austria	Ruthenian	24	F.	17	2	89
	Spain	Spanish	8	F.	17	1½	69½

[1] Months.

TABLE 47.—*Total score made by each immigrant, with data as to nationality, sex, age, etc.*—Continued.

Group.	Nationality.	Race.	Immigrant's No. among those of his nationality.	Sex.	Age.	Amount of schooling expressed in years.	Score.
Literate, 15 and above—Contd.	Russia	German	19	F.	17	1½	78½
	....do	Hebrew	27	F.	17	1	85
	Germany	Polish	2	M.	18	7	86
	Greece	Greek	8	M.	18	6	95
	Russia	Hebrew	18	M.	18	4	86
	Italy	Italian, south	14	M.	18	3	90
	....do	.....do	41	M.	18	2½	92
	....do	.....do	8	M.	18	2	90
	....do	.....do	29	M.	18	2	86½
	Russia	Polish	1	M.	18	1½	87½
	Spain	Spanish	19	M.	18	1	77
	Germany	German	21	F.	18	8	89
	Italy	Italian, south	20	F.	18	2	81
	Austria	Ruthenian	8	F.	18	1	79
	West Indies	Negro	3	M.	19	13	88
	Turkey	Armenian	1	M.	19	10	90
	Egypt	Egyptian	1	M.	19	9	84
	Greece	Greek	3	M.	19	5	91½
	Italy	Italian, south	5	M.	19	4	85
	Austria	German	8	F.	19	1	86½
	Russia	.....do	20	M.	20	4	89
	Italy	Italian	67	M.	20	2	91
	....do	.....do	78	M.	20	2	83½
	....do	Italian, south	95	M.	20	2	68½
	Austria	Hebrew	20	F.	20	3	63½
	Algiers	Algerian	1	M.	21	6	85
	Austria	German	9	F.	21	6	90
	....do	Ruthenian	3	F.	21	5	91
	Italy	Italian, south	69	F.	21	2	80
	Russia	Russian	14	F.	21	2	89
	....do	.....do	18	F.	21	1	91
	Switzerland	Swiss	1	M.	22	8	88
	Italy	Italian, south	39	M.	22	2	76½
	West Indies	Negro	1	F.	22	8	89
	Austria	German	14	F.	22	8	96
	Italy	Italian, north	68	F.	22	3	83
	Russia	Lithuanian	2	F.	22	1	61
	Italy	Italian	63	F.	23	3	82½
	....do	.....do	80	F.	23	2	93
	Greece	Greek	10	M.	24	5	89½
	Austria	German	3	F.	24	5	94
	Italy	Italian	46	F.	24	3	94
	....do	Italian, north	27	M.	25	2	93
	....do	Italian	43	M.	25	2	89
	Spain	Spanish	9	M.	26	2	82
	Russia	Russian	11	M.	26	1	91
	Austria	German	12	F.	27	8	96
	Russia	Hebrew	32	M.	27	5	92
	Spain	Spanish	11	M.	28	6	69½
	Greece	Greek	1	M.	29	1	52½
	Austria	German	4	F.	29	7	93
	Italy	Italian, north	47	F.	29	3	87½
	Greece	Greek	11	M.	31	3	87½
	West Indies	Negro	2	M.	31	2	79½
	Spain	Spanish	1	M.	33	9	90
	Italy	Italian, north	26	M.	34	8	82
	Austria	German	5	F.	34	6	67½
	Cuba	Cuban	1	M.	35	8	87
	Spain	Spanish	4	M.	36	9	87½
	Austria	German	13	M.	38	4	86
	Spain	Spanish	10	M.	40	1	81½
	Austria	German	2	F.	44	6	83
Illiterate, 10–11	Russia	Russian	16	M.	10	0	50
	....do	Hebrew	7	F.	11	0	70
	....do	.....do	1	F.	11	0	77
	....do	Russian	11	F.	11	0	67
Illiterate, 12–14	....do	.....do	26	F.	12	[1] 3	65½
	Italy	Italian, south	32	M.	12	[1] 2	54
	Russia	Hebrew	26	F.	12	0	67
	Austria	German	7	M.	13	0	87
	Italy	Italian, south	16	M.	13	0	59½
	....do	.....do	94	M.	14	0	82
	....do	.....do	44	F.	14	0	81
	Austria	Ruthenian	22	F.	14	0	69

[1] Months.

TABLE 47.—*Total score made by each immigrant, with data as to nationality, sex, age, etc.*—Continued.

Group.	Nationality.	Race.	Immigrant's No. among those of his nationality.	Sex.	Age.	Amount of schooling expressed in years.	Score.
Illiterate, 15 and above.	Spain	Spanish	13	M.	15	0	85
	Austria	Ruthenian	26	F.	15	0	45
	....do	German	6	F.	15	0	72
	Spain	Spanish	12	M.	16	0	82
	....do	.....do	15	M.	16	1 3	76
	Greece	Greek	5	F.	16	0	60
	Spain	Spanish	14	M.	17	0	61
	Russia	Hebrew	13	F.	17	1 2	50½
	Spain	Spanish	17	M.	18	0	89
	....do	.....do	21	M.	18	0	64
	Austria	Hebrew	24	F.	18	0	81
	Russia	German	18	M.	20	1 4½	88
	Syria	Arabian	1	M.	20	0	64
	Russia	Lithuanian	3	F.	22	0	63
	Greece	Greek	2	M.	23	0	78
	Spain	Spanish	20	F.	23	1 2	56½
	....do	.....do	5	M.	25	0	86
	Roumania	Roumanian	1	F.	25	0	78
	Spain	Spanish	18	M.	27	0	65
	....do	.....do	25	M.	30	0	76
	Italy	Italian, south	103	M.	31	0	62
	Spain	Spanish	6	M.	31	[2] 1	83
	....do	.....do	16	M.	31	1 3	84
	....do[1]	.....do	3	M.	32	0	62
	....do	.....do	22	M.	39	0	88
	....do	.....do	24	M.	42	0	77
	Italy	Italian	40	M.	43	0	76
	Spain	Spanish	7	M.	46	0	78
	Italy	Italian	17	M.	58	0	72
Italian illiterate	....do	Italian, central	38	M.	16	0	63
	....do	Italian, south	84	M.	16	1 4	86
	....do	.....do	6	M.	18	0	67
	....do	.....do	9	M.	18	1 3	89
	....do	.....do	93	M.	19	0	69½
	....do	.....do	79	M.	20	0	81
	....do	.....do	52	M.	21	0	78
	....do[3]	.....do	34	M.	23	[2] 1	65½
	....do	.....do	33	M.	24	1 5	81
	....do	.....do	37	M.	24	[2] 1	87
	....do	.....do	59	M.	25	0	82
	....do	Italian	19	M.	27	0	78
	....do	.....do	76	M.	27	1 5	85½
	....do	Italian, south	7	M.	29	0	75½
	....do	.....do	12	M.	29	0	50½
	....do	.....do	4	M.	30	0	35
	....do	.....do	10	M.	30	0	91
	....do	.....do	36	M.	30	[2] 1	83
	....do.[4]	.....do	35	M.	31	0	71
	....do	.....do	11	M.	39	0	92
	....do	Italian, north	1	F.	16	0	56
	....do	Italian	60	F.	16	0	52

[1] Months.
[2] Month.
[3] The following remarks are to be found on the examination charts of certain immigrants. These remarks contain the general impression which the subject made upon the examiner.
34, Italian. "Perhaps a high-grade defective."
35, Italian. "Emotionally defective?"
42, Italian. "Not far from a high grade (mental defective). Some results point to normality and others point to defect."
54, Italian. "Defective, perhaps."
57, Italian. "Feeble-minded, perhaps."
9, Russia, Ruthenian. "Stupid, dull of comprehension, weeps at the end of the examination. It is hard to decide at this time whether this is a case of ignorance or mental deficiency."
11, Austria, Ruthenian. "Perhaps high-grade defective."
3, Spanish. "Results in some tests point to mental deficiency."
These immigrants are included among the normals, because a positive diagnosis could not be made in any of these cases at the termination of an examination which lasted one and one-half hours. Many similar cases are found during the mental examination of arriving immigrants, and it frequently requires a period of observation and three or four examinations before a diagnosis can be agreed to by two medical officers.
As stated in the introduction, a positive diagnosis of mental deficiency was made in three cases, whose records were excluded from the data of the investigation.
[4] Suspected case of mental defectiveness. (See footnote p. —.)

TABLE 47.—*Total score made by each immigrant, with data as to nationality, sex, age, etc.*—Continued.

Group.	Nationality.	Race.	Immigrant's No. among those of his nationality.	Sex.	Age.	Amount of schooling expressed in years.	Score.
Italian illiterate	Italy	Italian, south	64	F.	16	(1)	46½
	....do	Italian	23	F.	17	0	35½
	....do	Italian, south	48	F.	17	0	75½
	....do	.....do	56	F.	19	0	75
	....do	.....do	58	F.	19	0	50½
	....do[2]	.....do	42	F.	20	0	33
	....do	.....do	62	F.	20	0	45
	....do	.....do	81	F.	20	0	84
	....do	.....do	82	F.	23	0	59
	....do	.....do	50	F.	24	0	82½
	....do	.....do	49	F.	25	0	56½
	....do[2]	.....do	54	F.	25	0	40
	....do[2]	Italian	57	F.	25	0	35
	....do	Italian, south	61	F.	25	0	70
	....do	.....do	73	F.	28	0	68½
	....do	Italian, north	66	F.	29	[3] 4	76½
	....do	Italian, south	15	F.	31	0	45
	....do	.....do	3	F.	35	0	74
Slav illiterates	Russia	Russian	10	M.	16	3½	92
	....do	.....do	25	M.	16	0	77
	Austria	Ruthenian	25	M.	16	0	85
	Russia	Russian	1	M.	18	[2] 3	85
	....do	.....do	7	M.	18	[2] 5	81
	....do	Polish	5	M.	20	0	76½
	....do[3]	Ruthenian	9	M.	22	0	67½
	Austria[3]	.....do	11	M.	24	0	49½
	Russia	Polish	7	M.	29	[2] 5	93
	....do	Russian	9	M.	33	0	76
	....do	.....do	26	F.	12	[2] 3	65½
	Austria	Ruthenian	22	F.	14	0	69
	....do	.....do	7	F.	16	[2] 4	81
	....do	.....do	14	F.	16	0	58
	Russia	Polish	11	F.	17	0	59
	....do	Russia	4	F.	17	0	56
	....do	Polish	8	F.	17	(1)	74
	Austria	Ruthenian	19	F.	17	0	69½
	Russia	Polish	4	F.	18	0	73
	....do	Russian	22	F.	18	0	52½
	....do	.....do	23	F.	18	0	86½
	Austria	Ruthenian	1	F.	18	0	58
	....do	.....do	6	F.	18	0	84½
	....do	.....do	15	F.	18	[2] 3	58½
	Russia	Russian	15	F.	19	0	78½
	....do	.....do	5	F.	20	0	70½
	....do	.....do	6	F.	20	[4] 6	72½
	....do	.....do	19	F.	20	0	75
	Austria	Ruthenian	18	F.	20	0	84
	....do	.....do	20	F.	20	0	72
	....do	.....do	21	F.	20	0	79
	....do	Polish	3	F.	21	0	87
	....do	Ruthenian	2	F.	22	0	60
	....do	.....do	5	F.	23	0	87
	Russia	Polish	9	F.	24	0	92
	....do	Russian	2	F.	26	0	90
	....do	.....do	24	F.	27	[2] 3	67½
	....do	Ruthenian	12	F.	32	0	87
	....do	Russian	12	F.	32	0	63
	....do	Polish	10	F.	35	0	62

[1] Few months.
[2] Months.
[3] Suspected case of mental defectiveness. (See footnote p. —.)
[4] Weeks.

DISCUSSION.

In order to compare the result of an examination with the score obtained in this investigation, the examination must be conducted in a quiet room in the presence of no one but interpreter and examiner. Twenty-four hours at least must intervene between the time of the immigrant's arrival and the examination, and the method of the examination must follow as closely as possible the method employed in this investigation. In order to confirm or disprove the result of any test of this investigation, it is important that the subject be put through a five-minute period of preliminary questioning before the test in question is propounded.

It is well to remember that during the experiment the most intelligent subjects failed on certain tests and that many immigrants who made a low general average made an excellent showing with some of the tests.

The complete examination as conducted in this experiment has been found to be a severe strain on children under 10 years of age. Many such children are also inaccessible at a first examination. Even those who reply to questions and attempt to perform tests are disturbed and do not do themselves entire justice when first examined. A seemingly inaccessible child may cooperate after seeing others perform tests and answer questions.

The medical examiner planning to familiarize himself with the psychology of immigrant children is advised first to test young children of different races in counting, simple addition, identifying objects, repeating digits, and performing the cube test in order to get a general idea of the normal child mind at the time of landing. Such tests will assist the examiner in understanding the child's mental content, his manner of thinking, his emotional reaction, and his cooperative power.

The examination chart of each immigrant tested together with tabulations showing the correlations in all tests for each individual are on file at Ellis Island. They may be inspected at any time by medical officers and others interested in the subject.

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